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The Path To 40GbE

Anue Systems' 5288 NTO Network Monitoring Switch Paves The Way

PROVIDING FAST AND RELIABLE network access is paramount to business productivity in today's enterprise environment, and network monitoring switches can help enterprises avoid costly outages. The 5288 NTO (Net Tool Optimizer) from Anue Systems (www.anuesystems.com) is the first network monitoring switch to provide network managers straight-on 40 Gigabit Ethernet-capable monitoring. Further, the 5288 also offers a high density of 10GbE ports (up to 64 in a space-efficient 2U chassis). Add those abilities together and the result is a network monitoring switch that directly addresses two problems currently challenging network managers.

The first is a shortage of available access points (SPAN ports and TAPs) in many enterprises for connecting their monitoring, security, and management tools. The second problem is the increasing need to manage rapid growth in bandwidth due to the deployment of more virtual servers, more media-rich applications moving to the cloud, and other technological advances. To keep up, network monitoring switches need to scale up. The 5288 does so by paving a clear migration path to 40GbE networking via up to 16 40GbE ports that enterprises can use to connect 40GbE-capable monitoring tools as they become available. Until that time, the 5288 enables enterprises to continue using the 1GbE- and 10GbE-capable tools they've already invested in via up to 64 1GbE- and 10GbE-capable ports.

A subtle bandwidth-related issue some customers overlook, according to Rudy Millian, product manager at Anue Systems, is that even though a monitoring tool may have, say, four 10GbE interfaces, in reality the tool may only be able to only process 10GbE of network traffic. "That's a big problem, and that's a subtle thing you know won't get noticed until you get there," he says. "We help customers solve that problem. We can aggregate all that traffic and filter it down to exactly what the tool needs for analysis."

Such ability immediately addresses the problem of a tool being overwhelmed with

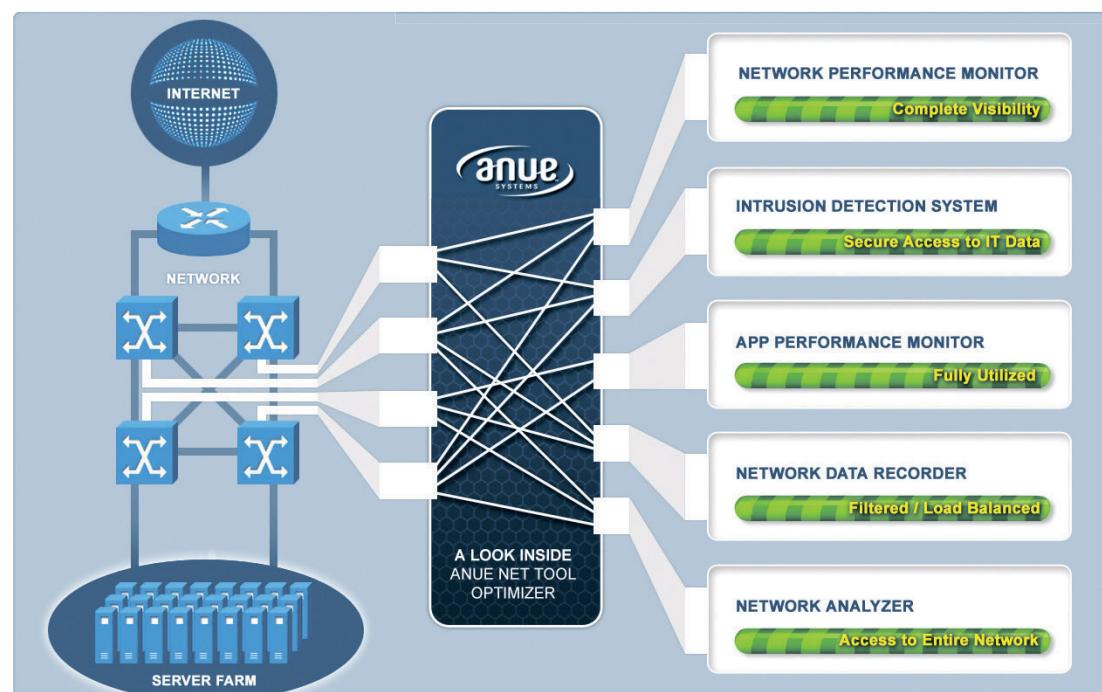
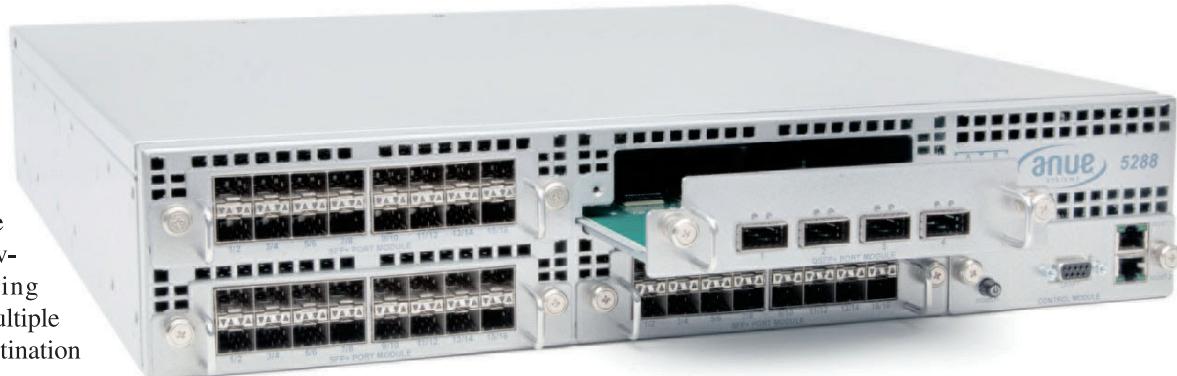


traffic, as well as the problem of a tool not seeing all the traffic available for analysis. "That, at a high level, is what we do," Millian says. Anue Systems does so using several techniques, including aggregating traffic from multiple input ports to a single destination

Canada, Switzerland, Germany, China, and Mexico. Beyond the 5288, the company offers three other NTO models in its 5200 series.

The 5204, which sports up to 24 RJ-45 Ethernet ports, is geared toward copper-based networks in small enterprises but can scale up for midsized enterprise use. The 5236 offers up to 24 SFP/SFP+

that Anue Systems applies to each of its 5200 networking monitoring switches is that a switch should be a flexible tool and not a "set it and forget it" proposition. "If you want to make a change, it should be easy to make a change today, tomorrow, six months from now," Millian says. "You go to your system, you log in, and it's just as intuitive as it was on day 1. You don't have to go back to your user manual to



port and taking traffic from one input port at the network side and mirroring it to multiple tools on the tool side.

Intelligently Simple

Anue Systems got its start in the networking testing and measurement space in 2002 providing network emulators. The company entered the network monitoring arena in 2008. Based in Austin, the company maintains offices in six U.S. cities, as well as in

Ethernet ports and is aimed at midsized and large enterprises with 10GbE fiber-based networks. The NEBS level 3-certified 5273 is a carrier-grade model suitable for telecommunication companies.

A defining feature of every 5200 series model is ease of use, something exemplified by Anue Systems' drag-and-drop based interface that enables users to focus on accomplishing tasks rather than on how to accomplish those tasks. Another philosophy

understand what the CLI command was and how to configure the system."

Overall, Anue Systems' control panel "saves customers a significant amount of time," Millian says. Beyond eliminating the steep learning curve of a new CLI and understanding the complex logic that goes along with setting up access control lists on your switch, he says, "[users don't have to] worry about the implication of setting configuration on one side and the impact that change may have on a configuration you may already have on the other side. That's the operational efficiency we deliver out of the box."

Other standout features include the ability to interconnect and mix and match 5200 series models, as well as support for three-stage filtering, floating port licensing, integration with partner tools, automated response technology, and delegation. To the last point, the 5200 series models enable multiple users to have individual roles, privileges, and rights to access certain parts of the system so they can delegate access to a tool to certain groups. For example, Millian says, "a security group can attach their security tools and make changes to their filters and set up without touching anyone else's data, but with the groups all still sharing the same system and same access points potentially." P

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News

Intel Surges Ahead Of Competitors In Semiconductor Market

Market research firm iSuppli has raised its projected 2011 growth for the global semiconductor market from 1.2% to 1.9% in light of impressive revenue numbers from Intel. The chip maker posted a 23% gain in revenue compared to 2010, \$49.7 billion worth of semiconductors in 2011, and took the top spot in market share with 15.9%. Samsung came in second, with 9.3% of the market and \$29.2 billion in revenue—a 3% increase over last year. Rounding out the top three is Texas Instruments, with \$14.1 billion in revenue and 4.5% of the market. AMD, meanwhile, came in 11th, with \$6.5 billion in revenue and 2.1% of the market.

Lenovo Eyeing HP's Top Spot In PC Shipments

Long-time king of the PC market HP is facing increasingly stiff competition from Lenovo, according to third-quarter figures from iSuppli. Lenovo shipped 12.5 million units in Q3 2011, which was a 14.5% increase from the previous quarter and up 24.8% from Q3 2010. The company's market share for Q3 2011 was 13.9%, which puts Lenovo just 4.1% below HP's 18% share. HP shipped 16.3 million units, up 5.9% sequentially and just 2.6% year over year. HP had a tough quarter, with changes in leadership and some uncertainty regarding whether it would spin off its PC business; analysts believe the turmoil may have provided an in-road for other PC manufacturers to gain ground. Overall shipments in the PC market totaled 90.4 million, a 5.5% increase from Q2 2011 and up 2.6% from last year.

Floods Spur SSD Demand, But HDDs Expected To Bounce Back Quickly

Declining hard disk drive supplies resulting from flooding in Thailand is driving up rush order volume

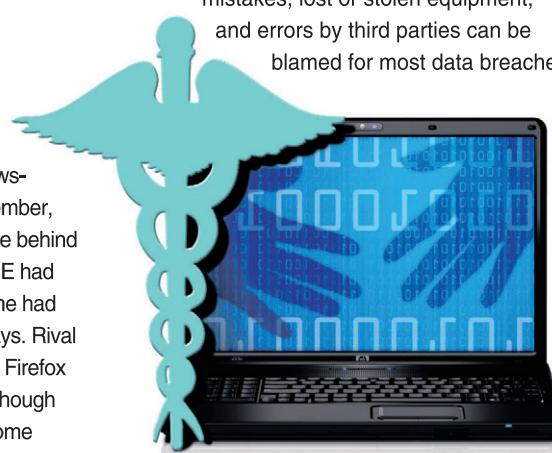
for solid-state drives, DRAMeXchange says. The increase in rush orders hasn't been enough to completely rejuvenate the SSD market, however; SSDs' higher price point is still somewhat cost-prohibitive for consumers, and demand for memory cards is likely to slow due to slowed digital camera production resulting from the flooding. Analysts expect that although there will be HDD shortages in the first part of next year, the HDD market should return to normal by mid-2012.

Chrome Edges Out Firefox For No. 2 Spot

New data from browser analytics firm StatCounter places Google's Chrome browser 0.5% ahead of Mozilla's Firefox in November, overtaking Firefox's long-held second place behind Microsoft's Internet Explorer. Specifically, IE had 40.6% of the market for November, Chrome had 25.7%, and Firefox had 25.2%, the firm says. Rival Web metrics firm Net Applications still had Firefox ahead of Chrome in its measurements, although it predicts that its calculations will see Chrome surpassing Firefox by April or May next year. Chrome's growth in the past two years has been precipitous; in November 2009, the browser had just 4.7% of the market.

iPhone 4S A Hit With Consumers

A survey conducted by ChangeWave Research early last month showed that an overwhelming 77% of 215 iPhone 4S owners were "very satisfied" with their devices, with much of the credit given to the introduction of Siri, the iPhone's voice assistant, cited by 49% as the best-liked feature. The iPhone 4S edged out its predecessor, the iPhone 4, in customer satisfaction; in July 2010, 72% of iPhone 4 users claimed to be "very satisfied." The biggest complaint about the iPhone 4S is its less-than-ideal battery life, though only 8% of those surveyed said battery life was a "very big problem"; the second most reported complaint was the absence of 4G connectivity.



Ponemon says, although lackluster security measures also play a factor—for example, of the 81% of respondents whose organizations store personal health data on mobile devices, 49% said their companies do little or nothing to secure the data. According to Ponemon, data breaches have cost healthcare organizations \$6.5 billion per year on average since 2010—enough to hire 81,250 nurses nationwide.

Tech Employment Up 2.1% Year Over Year

Employment within the tech industry is approaching pre-recession levels, according to the latest unemployment report from the U.S. Bureau of Labor Statistics; the statistics show tech employment of 4.07 million, just shy of the 4.09 million record set back in June 2008. Tech industry employment grew 0.17% from the previous month, adding about 7,100 jobs, and has grown 2.1% from the same time last year. The report also showed an increase in average wages for IT workers, with wages for highly skilled workers growing 6.85% year over year.

EMC Widens Its Lead In The Storage Market

New numbers from IDC show considerable growth for EMC's disk storage systems revenue, further widening the gap between the company and its competitors. Specifically, EMC's disk storage systems revenue for Q3 2011 increased 22% year over year, climbing to \$1.6 billion; the company commanded a 28.6% share of the external disk storage system market, which includes sales of storage arrays with space for three or more disk drives, and a 21.7% share of the disk storage systems market, which includes storage system revenue plus storage included in servers. IBM and NetApp tied for second place in the external disk storage systems market,

followed by HP. As for total worldwide disk storage systems revenue, HP came in first with \$1.4 billion, IBM was second with \$1.2 billion, and Dell took third place with \$879 million; NetApp rounded out the top five.

IDC Predicts Prevalence Of Big Data In 2012 . . .

Research firm IDC made a number of predictions about what's to come in 2012, including a number of showdowns in the mobile, Big Data, and cloud markets involving major players such as Microsoft, HP, and Apple. The company's main predictions for 2012 included increased spending on mobile computing, cloud services, social networking, and Big Data analytics technologies; 6.9% growth in IT spending to \$1.8 trillion, driven largely by smartphones, media tablets, and Big Data analytics; and the rise of mobile devices over traditional PCs in both shipments and spending. It also expects major competition among makers of mobile software and devices, as well as serious competition in the cloud market as companies such as Google and VMware challenge big-name companies such as IBM and Microsoft.

. . . While Gartner Sees Rising Importance Of Cloud & Consumerization

Gartner released its predictions for the technology sector in 2012, and chief among them is that a lot of IT responsibilities, such as budgeting decisions, will be shifting out of IT's hands as users take more ownership of their devices. Cloud computing factored largely into Gartner's predictions; the firm believes that low-cost cloud services will begin to take the place of outsourcing and predicts that more than half of Global 1000 companies will store customer-sensitive data in the public cloud by 2016. The research firm also predicts that consumer social network investments will drop off in 2013, at least half of enterprise email users will rely on some form of mobile client rather than a desktop client by 2016, and the development of mobile apps will surpass PC-aimed projects by 2015. Other predictions concerned an increase in the cost of cyber attacks and a return of 20% of outsourced manufacturing to American soil.

Budget May Be A Roadblock For DoD Data Center Consolidation

The U.S. Department of Defense says that its data center consolidation plans are on track, but budget concerns may hamstring its efforts in the near future. The DoD's current consolidation plans are expected to result in annual savings of \$680 million by 2015; however, the department's budget is set to decrease by more than \$450 million over the course of the next 10 years. The agency closed 55 data centers in fiscal 2011, beating its own expectations, and hopes to close another 96 data centers in fiscal 2012, with an overarching target of shutting 434 centers by the end of fiscal 2015, but it's uncertain whether the department will be able to reach those lofty goals in the face of budget cuts.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 13 major companies in the technology market.

Company	Symbol	Year Ago	Nov. 23 \$	Dec. 8 \$	% change from previous issue
AMD	AMD	\$7.95	\$5.05	\$5.47	▲ 8.32%
Apple	AAPL	\$319.76	\$366.99	\$390.66	▲ 6.45%
CA Technologies	CA	\$23.98	\$19.80	\$20.98	▲ 5.96%
Cisco Systems	CSCO	\$19.70	\$17.41	\$18.57	▲ 6.66%
Dell	DELL	\$13.65	\$14.30	\$15.50	▲ 8.39%
Google	GOOG	\$591.50	\$570.11	\$616.05	▲ 8.06%
HP	HPQ	\$42.54	\$25.78	\$27.66	▲ 7.29%
IBM	IBM	\$144.30	\$177.95	\$191.58	▲ 7.66%
Intel	INTC	\$21.81	\$22.70	\$24.71	▲ 8.85%
LinkedIn	LNUK	n/a	\$66	\$70.94	▲ 7.48%
Microsoft	MSFT	\$27.08	\$24.47	\$25.40	▲ 3.8%
Oracle	ORCL	\$29.26	\$29	\$30.74	▲ 6%
Red Hat Software	RHT	\$47.71	\$45.51	\$48.81	▲ 7.25%
Symantec	SYMC	\$16.96	\$15.54	\$15.69	▲ 0.97%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

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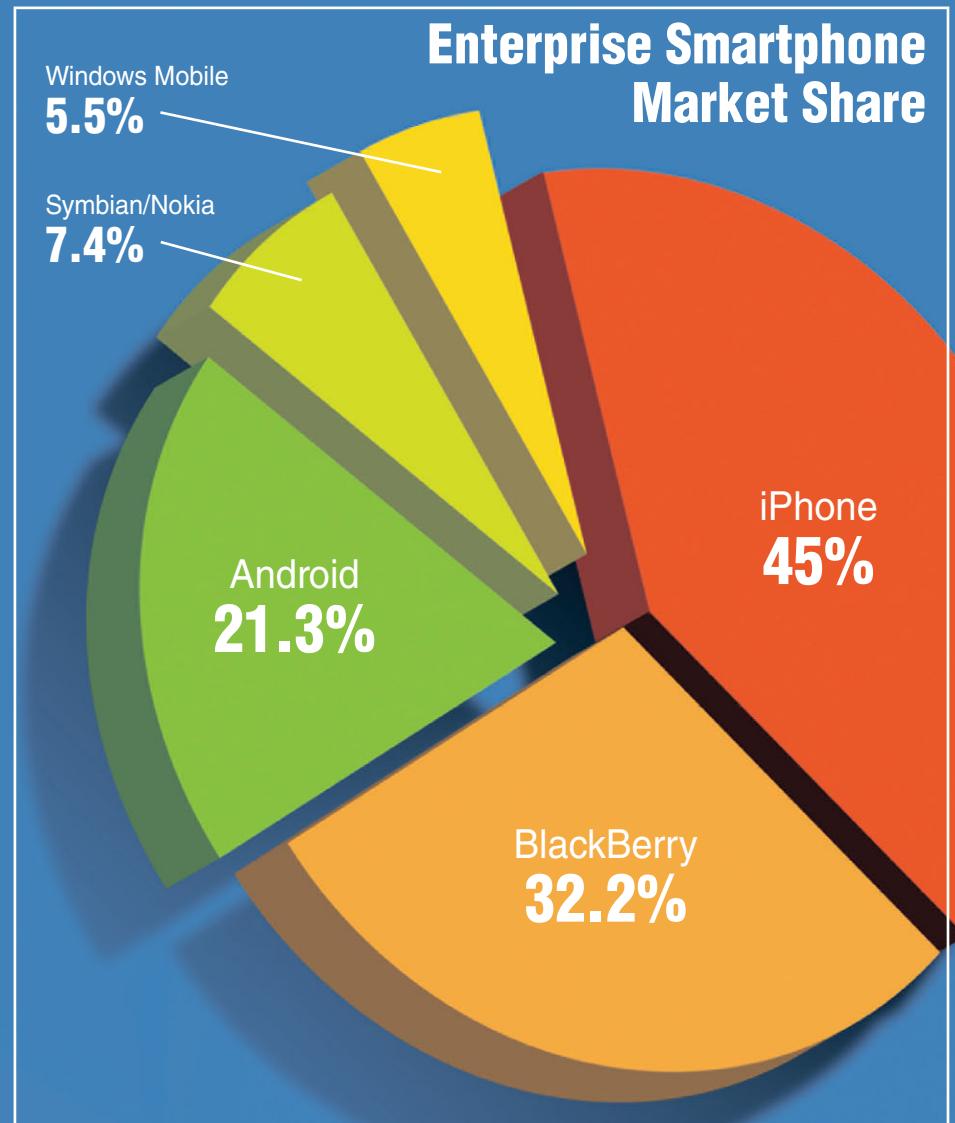


STATS & FACTS

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iPhone Climbs To The Top Of The Enterprise Smartphone Market . . .

Research firm iPass recently found that Apple's iPhone device has taken the lead among smartphones used by mobile enterprise employees, passing the previous champion, RIM's BlackBerry, as well as Android-based devices. iPass sees the trend continuing, with 18% of the 2,300 mobile workers surveyed saying they plan to buy iPhones in 2012, compared to 11.2% planning to buy Android-based devices and 2.3% looking to purchase BlackBerrys.



. . . As Mobile Workers Reach A State Of "Hyperconnectivity"

In a separate study, iPass found that today's always-on access via mobile devices has led mobile workers into a sort of hyperconnected state that is starting to affect their mental and physical health. In addition to disrupted sleep and exercise habits, mobile workers with constant access to network resources work 240 more hours per year on average than non-mobile workers, iPass found.

52% of respondents say they sleep less due to work habits

45% say they sleep within arm's reach of their smartphones

56% of participants said they exercise either erratically or not at all, with **60%** of those blaming work for their inactivity

59% of respondents claim to experience negative emotional effects when they are unable to access their smartphones

To combat the adverse effects of hyperconnectivity, researchers at iPass advise mobile workers to practice moderation and set aside times to "unplug" from their mobile devices.



RIM Falls Short

Research In Motion, the manufacturer of BlackBerry smartphones and the BlackBerry PlayBook, announced it will not meet its own financial expectations this quarter. The company says that it will take a \$485 million (\$360 million after taxes) hit to its third-quarter earnings for the fiscal year 2012. The PlayBook's lackluster sales in the tablet market, an arena dominated by Apple's iPad, is one of the contributing factors for the subpar profit, along with fewer BlackBerry smartphones selling than anticipated. RIM is now planning a strong push in marketing the PlayBook tablet, but the company is no longer expecting to reach its profit target for the year.

House Approves Changes To H-1B Regulation

The U.S. House of Representatives recently approved the Fairness for High-Skilled Immigration Act, which will eliminate the per-country cap on H-1B employment visas for foreign workers wishing to work in the United States. The bill was supported by a vast majority of the House with a vote of 389-15. The current immigration law limits the number of visas per country, which greatly affects larger companies such as India and China. With the changes proposed in this bill, those workers could expect quicker access to H-1B visas. The system would rely on a first-come, first-served basis and would not increase the number of H-1B visas issued per year. Senate approval is expected.



Verizon Buys Bandwidth For \$3.6 Billion

Verizon Wireless recently purchased \$3.6 billion worth of wireless spectrum from various cable companies, resulting in coverage for an additional 259 million Americans. A spokesman for Verizon Wireless said the spectrum purchase will help to solidify the company's network leadership and expand its 4G offerings to more Americans. The added bandwidth was purchased from Time Warner Cable, Comcast, and Bright House Networks. Although there is a current surplus of wireless broadband, the FCC claims this will change by 2014—data airwaves will reach capacity, and broadband spectrum will be a scarce commodity, prompting many carriers to increase their spectrum assets now.

SAP Buys Cloud Company SuccessFactors

SAP America announced it will purchase SuccessFactors for \$3.4 billion in cash. SuccessFactors was founded in 2001 and specializes in cloud-based management services; the company boasts more than 3,500 customers in 168 countries. SAP aims to improve its own cloud strategy with this acquisition, but will keep the firm independent. After this announcement, SuccessFactors said it would be making an acquisition of its own—the company will purchase Jobs2Web for \$110 million. Jobs2Web is a developer of Web software that utilizes information from social networking sites. The SAP/SuccessFactors merger is expected to close early next year.

Toshiba To Close Manufacturing Plants

In response to the lagging demand for personal computers, especially in the United States and Europe, Toshiba announced it will be closing down three of its six chip manufacturing plants and consolidating its production efforts into the remaining three plants. Toshiba says it will now refocus its efforts on discrete semiconductor production and phase out power and optical semiconductors. At this time, Toshiba is planning to relocate the 1,200 affected workers to other areas of the company. Analysts are seeing a very slow growth rate in the

semiconductor market in 2011 and foresee many negative effects on the market in 2012, including economic problems, the debt crisis, and the fear of a double-dip recession.

Windows 8 Tablet Loses Interest Before Release

According to Forrester Research, interest in the not-yet-released Windows 8 tablet is already dropping. The research firm found that only 25% of the U.S. consumers polled in the third quarter would like to purchase a Windows 8 tablet, compared to about 46% interested in the first quarter. The tablet has no official release date set, but is already a late entry in the market. On average, Forrester found that customers are willing to spend \$308 on a tablet. Microsoft will have to face Apple, as the iPad continues to dominate this market, and other competitors releasing tablets at a more affordable price point, including Amazon's Kindle Fire and Barnes and Noble's Nook Tablet.

Cisco: New Cloud Traffic Predictions Made

According to Cisco's first-ever Global Cloud Index, cloud computing traffic will grow 12-fold by 2015. Today, cloud computing traffic uses about 130 exabytes annually, and in 2015, that number will increase to 1.6 zettabytes, according to Cisco. The company says 1.6 zettabytes is the equivalent of 22 trillion hours of streaming music. Data center cloud traffic alone will reach 4.8 zettabytes, a four-fold increase from today's traffic, according to Cisco's estimations. The company also says cloud traffic will reach more than a third of total data center traffic by 2015, a significant increase from the 11% of total traffic used by the cloud in 2010.

AT&T & China Telecom Sign Bandwidth-Sharing Deal

AT&T and China Telecom have agreed to share telecommunications infrastructure in the United States and China. The companies signed a deal that will allow them to use each other's infrastructure, including Wi-Fi hotspots, in order to provide a better quality of service for international customers of both companies. Each of the two companies aims to provide service for multinational businesses, workers, and students; China Telecom will use AT&T's network to provide service to its Asian customers and vice-versa. The two companies have worked together since 2000 and will likely look to expand into other regions, according to AT&T.

Switchfast To Carry Network Box UTM Appliance

Switchfast Technologies was recently added as a reseller of the Network Box managed Internet security service, including the Network Box UTM (unified threat management) appliance. The Network Box UTM appliance is geared toward small to medium-sized enterprises looking for a security device to combat hackers, worms, and other malicious content. The appliance includes firewall, intrusion prevention and detection, VPN, antivirus, and content filtering. Switchfast has already been signed as a channel reseller for the appliance, with locations in Chicago; Rochester, N.Y.; Hartford, Conn.; Washington, D.C.; and Atlanta.

Firm Outlines Tablet Sales In Market Controlled By Apple

Apple's iPad continues to dominate the tablet market, but HP's discontinued TouchPad tablet held the second spot in sales during the first 10 months of the year, according to NPD. Analysts attribute the sales numbers to HP's price cut after announcing the company would discontinue the device. Samsung's tablet held the No. 3 spot with 16% of the non-Apple sales during that same period, just under HP's 17% share of non-Apple sales. In the No. 4 slot, Asus held 10% of non-Apple sales, followed by Motorola and Acer, tying for fifth place with 9% apiece. The 25 million iPads sold in 2011 account for about 65% of the total tablet market.

■ Government IT Security Spending Less Than Business Sector

According to a recent report from IDC, the U.S. federal government is allocating significantly less of its IT budget on security than other industries. The government is budgeting \$6.5 billion for security purposes in 2012, about 8% of its total IT budget for the year. A similar IDC survey taken in 2007 showed businesses typically allocated 19% of their IT budgets to security needs on average. Although the research firm notes that this number can vary, the government is spending much less on security than is typical in the business sector. Federal agencies devoting the most to security solutions are the Department of Defense and the Department of Homeland Security, according to IDC's report.

■ FCC Views AT&T/T-Mobile Merger As Anticompetitive . . .

After reviewing the proposed merger between AT&T and T-Mobile, the U.S. Federal Communications Commission found the acquisition to not be in the public's best interest. The FCC announced that AT&T would now be required to present its case in front of an administrative law judge. The commission stated that the merger would make AT&T the largest carrier in the U.S. mobile market and would be anticompetitive. AT&T previously claimed the merger would help propel 4G and would lead to the creation of jobs. The FCC, however, disagrees with AT&T, claiming the merger would more than likely lead to massive layoffs.

■ . . . AT&T Drops FCC Application But Plans To Keep Fighting

Although AT&T is still planning to acquire Deutsche Telekom's T-Mobile, the company has withdrawn its merger application with the Federal Communications Commission.

According to AT&T, the company plans to first face a lawsuit filed by the U.S. Department of Justice to block the merger, which cited a violation of antitrust laws. The FCC has voiced concern with the proposed merger, but AT&T plans to readdress the FCC filing when practical. If AT&T is not able to thwart the DoJ's efforts to halt the merger, the company will be responsible for paying a \$4 billion accounting charge to Deutsche Telekom for breaking off the deal.

■ Proposed Cyberthreat Information Sharing

Republican Representative Dan Lungren of California proposed a bill that would allow the U.S. government and private companies to share cyberthreat information between their respective organizations. The proposed bill would include the creation of a National Information Sharing Organization, a nonprofit serving to collect and distribute the shared cyberthreats. Although the proposal aims to fuel cybersecurity research and development, some worry this organization would jeopardize privacy between the organizations or expose personal information. Other critics worry about the joint venture between government and private organizations leading to a lack of government control.

■ Forrester: SSD Data Storage May Be Better Choice

A recent report from Forrester Research examined the possible benefits of an all-SSD (solid-state drive) infrastructure vs. hard drive arrays. Although SSDs are currently more expensive than hard disk drives, Forrester says enterprises can reduce capacity requirements with deduplication, meaning fewer drives would need to be purchased; therefore, because SSDs run faster than HDDs and consume less power, Forrester says SSD-based data storage solutions could be the most cost-efficient option in terms of operating

expenses. Forrester estimates SSDs are 10 times more expensive than HDDs on average; however, after flooding in Thailand stopped hard drive production at a number of manufacturing plants, analysts predict the stalled HDD market will boost the adoption of SSDs.

■ Facebook Settles With FTC

Facebook is settling with the FTC over eight counts of privacy violations stemming from changes in privacy settings on the social networking site. The FTC claimed that Facebook was not delivering on its promise to millions of users worldwide regarding their account privacy. The company was accused of releasing personal information when users clicked an advertisement, not completely deleting a user's data after leaving Facebook, and not being clear about privacy settings and changes to those settings. As part of the settlement, Facebook agreed to regular reviews of its privacy practices by an independent firm for the next 20 years; no monetary penalties will be ordered unless the company violates this agreement.

■ Report: HIE Use Continues To Rise

CapSite, a health IT research firm, released a study regarding the use of health information exchanges related to the HITECH Act. According to the results, nearly 80% of hospitals already use a health information exchange or plan to use an HIE; specifically, 47% plan to join an HIE and 32% have already joined. The main reason hospitals are joining HIEs is to meet the government's meaningful use criteria—almost half of the 340 hospitals surveyed cited this as the leading motivator. CapSite says the HIE market is growing, and has been growing since 2009; the company predicts the HIE adoption rate to accelerate in the next two years.

■ LaserJet Printers Vulnerable To Attack

Researchers at Columbia University have uncovered a security weakness present in millions of HP LaserJet printers that could potentially be exploited by attackers, granting them access to—and even control of—users' systems and data. The vulnerability is in the printers' remote firmware update process, through which attackers can insert malicious code and use the device for nefarious purposes. For its part, HP acknowledges the flaw but says it's not as serious as the researchers purport it to be; the researchers also said the vulnerability could apply to printers from other manufacturers, as well.

■ Nokia Siemens To Cut 17,000 Jobs

Nokia Siemens announced that it will cut nearly one-quarter of its workforce after reporting losses quarter after quarter for nearly two years. The equipment manufacturer plans to completely refocus, moving from a global manufacturer to a vendor of a more specific set of products. Nokia Siemens will eliminate 17,000 jobs over the next two years in an effort to cut costs (an estimated \$1.35 billion in savings by 2013) and boost profit by focusing on mobile broadband equipment. The company is a joint venture between Nokia and Siemens; analysts expect the company to go public in 2013. Although the layoffs are global, the bulk of the European company's employees are in Germany and Finland.



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HOW TO

Implement RFID In The Data Center

Get The Best Benefits With The Right Implementation

RFID TAGS HAVE EMERGED as very useful devices for tracking and monitoring data center equipment. Admins can use the devices to track equipment location, maintenance status, and other information. RFID tags can also help data centers become more compliant with regulations and add an extra layer of security by helping to prevent theft.

"Using RFID technology benefits the data center operations team with an automation solution utilizing leading-edge technology, which should bring improved process, compliance, maintenance, utilization management, and financial [efficiencies]," says Shawn J. Haidar, a mobility consultant within the technical consultant service delivery business unit at HP (www.hp.com). "[It can also help] to eliminate manual data entry and processes required to validate captured data validity against core inventory repository data and provide the ability to quickly scan devices on location, enabling ongoing inventory data collection for a data center vs. requiring dedicated inventory collection processes and resources." However, using RFID tags to track and monitor data center equipment first requires careful planning and execution. Here is how to implement the devices in order to best take advantage of this useful and affordable technology.

Take Stock Of Your Needs

RFID must be implemented in such a way that it meets the specific needs of a data center; a one-size-fits-all configuration does not work. "RFID has been undersold and mis-sold by vendors who have taken the view that it is all or nothing. RFID has a great part to play in a data center, but needs to be done correctly, at the right price point," says Clive Longbottom, service director for business processes facilitation at Quocirca.

In order to get the results you want, HP's Haidar says, it's necessary to determine what RFID devices work best in the data center's physical environment, the material on which the RFID tags will be placed, the minimum and maximum read distances for the tags, and security requirements.

Passive Or Active RFID

A key decision to make prior to deployment is to decide whether passive or active RFID devices are required for the data center. For example, active RFID tags transmit information, which facilitates always-on monitoring, Quocirca's Longbottom says. "[However], active RFID means that there is a large amount of radio frequency going on in the data center, and we have found that few data center managers are keen on this," he says. Passive tags only transfer data when they are read and require an active electronic reader, usually within line of sight of the tags, Longbottom says. "Most passive tags work best in a near field scenario—the reader has to be very close to the tag before it 'sees' it," he says.

Active tags will also require power to remain always-on. "You [may be] looking at lots of extra cable runs and energy losses with [active tags]," Longbottom says. "Passive tags will either have no energy source or will be able to run off a battery for many years, but will need readers that are portable and must be carried by the data center personnel."

Maintenance will differ, depending on whether the tag is an active or passive RFID device, says Dale Parvey, product manager for RF Code (www.rfcode.com). For active RFID devices, battery replacement represents the main maintenance task, he says. "Our battery standard tags sleep for 9.9 seconds, then wake up and it says 'Here I am, and here is my status,' then it goes back to sleep." The battery for those active devices only needs to be replaced every seven years, Parvey says, while a device that "wakes up" every 15 seconds has a much longer battery life.

According to Parvey, passive RFID maintenance involves line-of-sight spot checks using a reader to see if the device is functioning like it should. The tag might

become unreadable if it gets damaged, which the reader detects. But other than that, Parvey says that passive devices are very low-maintenance because they do not have batteries to replace or maintain.

Most data centers will combine the use of active and passive RFID devices for a hybrid solution, Quocirca's Longbottom says, so major assets such as mainframes, full racks, and UPS units could be tagged with active tags, and sub-assets such as individual blades, switches, and monitors may be tagged with passive tags.

Another variable to consider is the value of the intellectual property associated with the equipment, Longbottom says. "Any storage system may be viewed as being of high value to the business or at least a high risk if stolen, and so may need to be actively tagged," he says. And technology requirements, of course, will differ depending on the data center. For example, some data centers may opt for more active devices, which are also more "cutting-edge" and expensive than passive devices are, says Randy Rolin, a sales executive for ODIN RFID (www.odinrfid.com).

Key Points

- Equipment, tracking, and other needs specific to your data center will vary compared to other enterprises, so careful planning is required to assess the best solution before implementation.
- It is necessary to determine whether equipment will use active or passive RFID tags, which vary in function and price.
- RFID implementation requires software solutions to manage the devices and to serve as the tracking and monitoring interface.

"Active RFID will let you scan a floor of servers or computers in a matter of minutes from a doorway compared to spending hours doing that with passive RFID, which requires a line of sight between the tag and the reader."

The Cost Factor

The cost of implementing RFID can vary tremendously, while the price between active and passive RFID devices are especially significant. Passive devices, for example, cost only a few cents per tag compared to \$50 to \$70 per tag for active RFID devices, Rolin says. Implementation outlays will also vary beyond what the different RFID tags and readers will cost and will depend on a number of other factors, says Michael J. Liard, an analyst for ABI Research. For example, the number of sites where RFID tags will be used, the amount of IT assets that will be tagged, infrastructure constraints, and service requirements will affect how much investment is required, says Liard.

Get The Right Tools

A robust software solution will need to be selected and then implemented to manage the devices after determining which equipment needs to be tagged and the best system to do that, Quocirca's Longbottom says. "The majority of data centers are very poor on asset management at the moment, so some form of asset discovery software [used with RFID devices] will be required to actually find out what is present," he says. "This should be a live, dynamic system, so that as new assets are added and old ones are retired, the system automatically updates."

Implementing the tags and installing the software will usually involve hiring third-party system integrators, which are often hard to find. In fact, one of the roadblocks to widespread adoption of RFID IT asset tracking solutions is "a lack of experienced systems integrators and software issues associated with integrating RFID infrastructure with pre-existing enterprise systems," says ABI's Liard. "However, these issues are quickly being overcome as the market matures and more full-scale deployments are executed," he says. □

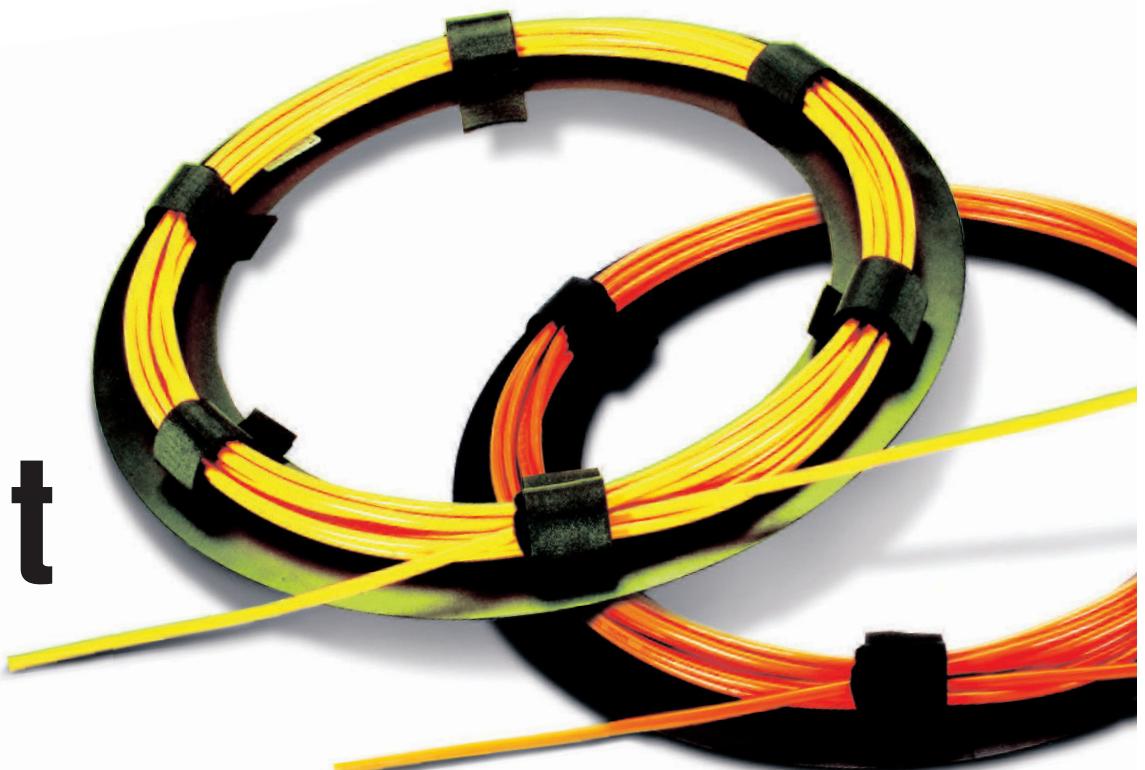
Top Tips

- ✓ Enterprises will need to outline best-practice policies that RFID vendors will need to follow, says Michael J. Liard, an analyst for ABI Research. "[Best-practice considerations] are particularly important for international companies, where regional capabilities and needs may differ," he says.
- ✓ Careful attention needs to be paid to make sure that RFID tags are accurately applied to the assets, says Clive Longbottom, service director for business processes facilitation at Quocirca. "It is a waste of time if the RFID tag is associated with the wrong asset, as you'll not be tracking the right stuff."
- ✓ As a security consideration, RFID alarm settings need to be defined, Longbottom says. "Is the movement of a switch from one rack to another something where a full alarm needs to be raised or is an email [alert] enough, saying that it has been noted and the asset database has been updated accordingly?"
- ✓ Buying RFID tags and readers in bulk can offer many benefits, says Shawn J. Haidar, a mobility consultant within the technical consultant service delivery unit at HP (www.hp.com). "I am sure you would appreciate the heavier discount and shortened delivery timescales that could then be offered [by buying in bulk], because the vendor was better able to plan his upcoming production runs more efficiently," he says.



BUYING TIPS:

Cable Management Solutions



TRADITIONAL DATA CENTER DESIGNS are undergoing a radical physical transformation as more companies turn to space-saving, cost-reducing, and green-influenced plans that accommodate today's equipment but leave wiggle room for tomorrow. A constant in designing any space, however, is choosing the appropriate cable management system for a given situation. The following can help those in charge of the planning select the right cable management system for the present and future.

✓ Cover the basics.

The list of considerations for buying cable management products is long. Still, it's important not to overlook the basics. For example, "One of the easiest methods of managing cables is to use cables that are an appropriate length in the first place," says Laura Viars, senior account manager at Rackmount Solutions (www.rackmoundsolutions.net).

Additionally, factor in overall cost, ease of use and installation, bend radius, adaptability to current infrastructure, equipment and workmanship warranties, the impact on heating and cooling, material, durability, and diameter. "Different cables have markedly different diameters, ranging from slim fiber-optic cable to very bulky CAT 6A UTP cable," says Gina Dickson, product manager at Black Box Network Services (www.blackbox.com). "A cable management product that's adequate for fiber cables may not support the same number of UTP cables."

✓ Size up the vendor.

Cassie Fyten, sales manager at PDU Cables (www.pducables.com), recommends investigating the reputation and service of the vendor, including whether it provides an easy-to-use method for ordering and helps to eliminate confusion, wrong wire size, cable length, and correct outlets required for server connections. Also, determine how quickly the vendor can deliver its product and whether it has knowledge of power cables and their importance to your business, Fyten says.

✓ Check for accessibility and reusability.

Viars considers accessibility and reusability two of the best features a cable management product can possess. This can include products with removable covers or that use Velcro tie wraps instead of plastic ones. Michael Carter, general manager of CTI, a Methode Electronics brand (www.methode.com), says

it's important to ask if the product can easily be modified if your infrastructure needs to change.

✓ Don't be afraid to think big.

"Today's data centers are very high-density compared to data centers of the past and will likely be called upon to accommodate even higher equipment density in the future," Dickson says. Thus, buyers should "plan for future growth by incorporating high-capacity cable management such as ladder

racks and basket trays," she says. Viars agrees that expansion is a key consideration. "Whether you are managing a data center or just organizing a single workstation, it can be aggravating having to cut cable ties and rerun wires to accommodate a new addition," she says, so if expansion is a possibility, plan to accommodate that growth. If managing cable in a rack or cabinet, Viars suggests using the space wisely by making sure cables are bundled neatly, using both horizontal and vertical cable managers when necessary. □

BUYERS' CHECKLIST

✓ OU to the rescue.

Although horizontal cable management products only take up one or two rack spaces, you still may lack free space to work with. In such cases, Rackmount Solutions' Viars says to consider solutions that can mount on the same holes as your equipment, essentially creating a OU solution.

✓ Should you DIY?

No matter the management system you choose, you must decide who will install it. Methode's Carter says that, just as in any product category, DIY can be less expensive than paying for professional installation but can end up costing more due to installation issues and ultimate performance of the installed system.

✓ Measure.

According to Black Box's Dickson, a basic requirement for buying cable management products that sometimes gets overlooked is that the product must be compatible with existing infrastructure. "In other words, measure before ordering," she says.

KEY TERMS

Bend radius.

Kinks or crimps in cabling can have a big effect on cable and network performance. Bend radius indicates the radius of curvature a cable can bend without being damaged. Minimum and maximum radius numbers are typically provided to help maintain proper cabling conditions.

UL Listing.

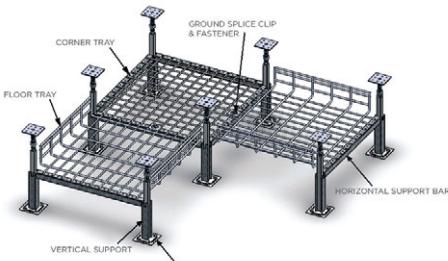
Short for Underwriters Laboratory, the UL is an independent safety certification organization that's tested products and written associated standards for many decades. The standards ensure products won't cause electrical hazards in mission-critical facilities.

PRODUCT SPOTLIGHT

Overhead & Underfloor Cable

Product

Access Cable Trays FloorFlex Cable Tray System



Description

Access Cable Trays' FloorFlex is a cable tray system designed for use beneath an access floor. Cable tray sections are available in various heights and widths to let users customize their trays according to their cabling needs. The system is also available in various heights above the slab to match any access floor depth. Designed to snap together, FloorFlex offers the ultimate in flexibility and ease of installation.

- No special tools or cutting required
- Available as standard single-level with optional two-level and three-level designs
- No need to remove and replace access floor structural components to install
- Brings cabling as close as 2 inches from the access floor surface for easy access and management
- Fits all access floor manufacturers' makes and models
- Easily reconfigurable to accommodate changing needs
- Made in the United States

Best For: Data centers, general offices, or any other facility utilizing an access floor, as well as data center renovations and new constructions.

Contact: (866) 777-2576 | www.accesscabletrays.com

Black Box Ladder Rack & Accessories



Black Box's Ladder Rack and accessories enable you to create a cable management solution that fits your installation exactly. The Ladder Racks consist of 16-gauge tubular steel, come in 6- and 10-feet lengths, are 12 inches wide, and are available in black or gray colors. Most elements of the solution are guaranteed for life and built to fit anywhere, including ceilings, walls, and wiring closets.

- Secure Ladder Racks to walls or ceilings with wall brackets and foot kits
- Add L-brackets, stringer radius drop kits, and radius drop kits as needed
- Most hardware has a one-year Black Box warranty

Best For: Managing large bundles of cables and use with modular networking frames and cable management racks.

Price: Start at \$52.95

Contact: (888) 433-5049 | www.blackbox.com

Black Box Fiber Optic Storage Rings



Black Box's Fiber Optic Storage Rings safely store excess fiber optic cable with proper bend radius maintenance and kinking prevention. The rings hold 30 to 50 feet of excess cable and are designed for use in entrance facilities, intermediate and main distribution frames, and wiring closets.

- Mount to walls with wood screws
- Lifetime guarantee
- Available in 12- and 24-inch diameters

Best For: Storing excess fiber cable in entrance facilities and intermediate and main distribution frames.

Price: Starts at \$29.95 for 12-inch diameter

Contact: (888) 433-5049 | www.blackbox.com

Product

iStar ClayTek WA-CM1UB 1U Cable Management Rack Kit



Description

iStar's ClayTek division provides an economical and effective solution for cable clusters. The WA-CM1UB takes up only one unit of space in standard 19-inch racks and enclosures and helps to keep cables organized. Cables can be easily threaded through the panels, and excess wiring can be stored inside the management casting. ClayTek also offers a 2U model, the WA-CM2UB.

- Easy to install and manage
- Economic solution to cable clutter
- Sturdy design protects cables from damage

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: \$50.95

Contact: (888) 989-1189 | www.istarusa.com

iStar ClayTek WA-PP24-C6



From iStar's ClayTek division, the WA-PP24-C6 is a 24-port 1U CAT 6 patch panel that's designed for high-speed transmissions cabling and suitable for standard 19-inch rack mounting. ClayTek also makes the panel available in 1U 12- and 16-port models and 2U 32- and 48-port models.

- For TIA/EIA-T568-B/A Wiring Configuration
- 1.75 x 1.25 x 20 inches (HxWxD)
- Black electrostatic powder-coated steel
- RoHS compliant
- Category 6 certified

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: \$101

Contact: (888) 989-1189 | www.istarusa.com

PDU Cables Air-Guard Cable Seal



The Air-Guard cable seal from PDU Cables seals access holes used to route underfloor power distribution cables and communications cables through a data center's floor. The seals provide two-piece design options to manage cabling by allowing users to remove tiles without having to disconnect cables. Additionally, the seal immediately saves energy by significantly minimizing cool air loss while improving static pressure to keep data center equipment from overheating.

- Flexible, simple cable routing via removal of floor tiles without disconnecting equipment
- Reduces air loss in plenum-cooled floors and improves underfloor static pressure
- Extends life of cooling equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Contact: (866) 631-4238 | www.pducables.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Management

CTI Quantum Cabling Solution™



CTI's Quantum Cabling Solution is a user-friendly, highly efficient cable management solution that lets users cable a fully loaded enterprise-class director in half the time of traditional cabling methods. The Quantum is highly manageable and improves troubleshooting and move/add/change activities as compared to traditional cabling methods when deployed with TIA-942-compliant solutions. The Quantum Cabling Solution can handle the highest port count hardware on the market while utilizing the least amount of valuable rack space. It's currently available for Brocade and Cisco 9513 enterprise-class directors; additional configurations are available upon request.

- Fast, simple installation
- Compliant with TIA-942 Telecommunications Infrastructure Standard for data centers
- Compatible with high-density cabling environments

Best For: Cable management for high-density switches.

PDU Cables UL Listed Power Distribution Cable Assemblies



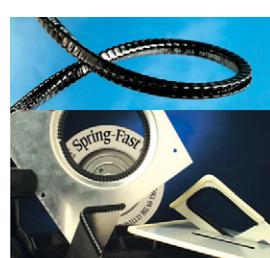
Manufacturer of UL Listed, underfloor power distribution cable assemblies, PDU Cables is fast, reliable, and knowledgeable while remaining cost-effective in providing the industry's highest-quality power cables. Use pre-fabricated, color-coded, and labeled cables to excel in data center cleanliness and organization. UL Listed and Hi-Pot tested, every cable is guaranteed not to fail. PDU Cables provides customers with 24-hour turnaround and standard transit times of one to three days to most U.S. locations (cable expedition available). Currently more than 5,000 data centers use PDU Cables' products to save time and labor and to reduce overall project costs.

- UL Listed and tested power distribution cables
- Molded cord assemblies
- Drop-down SO cord

Best For: Raised floor data center applications.

Contact: (866) 631-4238 | www.pducables.com

Device Technologies Spring-Fast SL Series Encapsulated Metal Grommet Edging



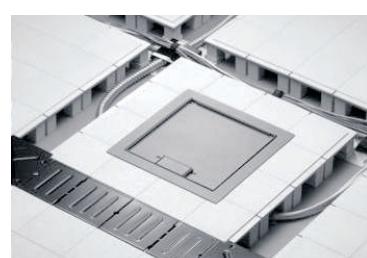
The high-performance

SL Series grommet edging from Device Technologies is the company's next-generation wire protection solution. The SL Series meets specifications for Telcordia; BICSI; UL94V-0; and a multitude of performance attributes across various industries, including aerospace, HVAC, medical, power, and transportation. As with all Spring-Fast grommet edging series products, the SL requires only finger pressure to snap on, locking into place to conform to edge requirements. It offers a smooth protective cable, wire, and fiber interface on edges of cabinets, enclosures, and rack sheet metal and/or sharp edges of composite, plastic, or perforated materials.

- Available in a range of sizes with application thickness of 0.02 to 0.13 inches
- RoHS/REACH compliant
- No adhesives needed
- Reels or cut to length
- Indoor/outdoor

Best For: Data centers; telecommunications, equipment rooms, and lab spaces; access floors and underfloor cable management; and racks and chassis.

Information Support Concepts ConnectFloor Modular Computer Floor



The ConnectFloor

Modular Computer Floor from Information Support Concepts is a cable management solution designed to provide flexible functionality that is affordable and simple to implement. Similar to Lego building blocks, the company says, you can use the modular pieces to assemble the ideal cable management setup to suit your exact cable-routing needs.

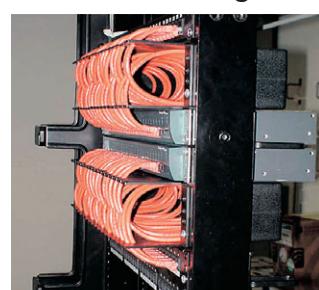
- Less than 3 inches high for a low profile that fits almost any room
- Easy to install, with no special tools required
- Options available for carpet squares and floor power boxes
- Easily reconfigurable and reusable

Best For: IT labs or areas where instant floor cable management is required.

Price: Varies based on square footage; for example, 1 to 3,000 square feet cost \$10.10 per square foot

Contact: (800) 458-6255 | www.iscdfw.com

Rackmount Solutions Neat Patch Cable Organizer



Tired of messy networks? Place the Rackmount Solutions Neat Patch kit between a switch and a patch panel, and you'll never have another cable mess. We guarantee it!

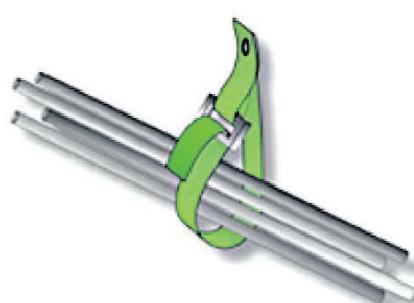
- Promotes bend radius compliance in patch cable management
- Patch cables are easier to trace from panel to electronics
- Priced less than the leading brands of horizontal management
- Uses a patented plastic molded design that is non-conductive. Wire with confidence there will be no electrical issues such as surges and grounding since the plastic fingers are not riveted to metal or metal D-rings.

Best For: Enterprises building a new network or wanting to clean up an existing installation.

Price: Starts at \$59.34

Contact: (866) 207-6631 | www.rackmoundsolutions.net

Rackmount Solutions Rack-ups



The Rack-ups wire management straps from Rackmount Solutions are designed to help manage and safely secure electrical, CATV, and fiber-optic cables. Made from Velcro® hook-and-loop tape, Rack-ups will not cut or pinch cords like plastic ties. The hook-and-loop tape makes it easy to adjust, remove, and/or add cords. These straps have a 0.25-inch brass grommet, so they can be nailed or screwed to equipment racks, brackets, shelving, walls, and ceilings, keeping cords safely out of the way.

- Available in three models: plain, grommet, and buckle
- 0.75- x 9-inch hook-and-loop tape
- Comes in black, with other colors available on request

Best For: Data centers in need of an easy way to better organize and manage cabling.

Price: \$7.50 (plain, pack of 10); \$9.95 (grommet, pack of 10); \$12.97 (buckle, pack of 10)

Contact: (866) 207-6631 | www.rackmoundsolutions.net

HOW TO

Determine The Best Storage Approach

Assess Your Needs & Consult With The Pros To Determine The Best Fit

NEW STORAGE IN YOUR small to midsized company's data center could be cloud, in-house, or a combination of both. Unless your organization's IT department has current expertise in this important area—or even if it does—it's a good idea to retain the services of a qualified, full-service vendor or consultancy firm.

"Do your homework, but don't overanalyze," says George Crump, senior analyst at Storage Switzerland. "Most vendors have an offering in this space. If [you] talk to everyone, [you] may quickly become overwhelmed."

Crump suggests that you discuss your project with one systems vendor, one new-but-established vendor focused on the mid-range, and one startup.

Evaluation

When narrowing down your storage options, careful research is invaluable. "The key to successful IT/storage decisions is doing your homework and understanding the dynamics and priorities of your business needs and strategy," says Jonathan Siegal, senior director of product marketing in the Unified Storage Division at EMC (www.emc.com). "There is no single, one-size-fits-all answer."

First, Crump says, your organization should have a clear goal. "Do [you] need more capacity, more performance, better data protection, [or] some or all of the above?" he asks.

Siegal and Crump agree that your organization needs a solid understanding of several things. For example, Crump says, your company "should inventory the type of data you have today—how much is in databases, email, files, etc." Siegal adds that you'll need to be clear on your company's business requirements, business strategy, and networking strategy, including bandwidth requirements and available facilities and services.

Next, equip yourself. "A good [set of] storage analysis tools is always a wise investment prior to purchasing a new storage system," Crump says. "It answers [many] of the above questions and identifies performance problems."

Use the analysis tools to evaluate how you're currently using your IT resources, Siegal says, both in aggregate and by application—via the app itself or at the server or storage level, as applicable.

"It is important to understand the existing/available capacities (headroom), underutilized storage resources, I/O throughput as a percentage of available based on steady-state and peak loads, and the same characterization in aggregate at the network level," Siegal explains.

Next, give serious thought to how much of the new storage could be in a cloud, whether public (third-party) or private (in-house). Many experts believe private cloud storage becomes more cost-effective than public cloud capacity for data sets larger than 100TB.

Key Concerns

There are a number of things to keep in mind as you formulate your storage strategy:

Data safety. Keeping your precious data safe is vital to profitability, so be sure to implement redundancy and strong error correction, as applicable.

Uptime. Staying up and running is crucial to business continuity. You need reliable devices and software, along with failover protection (meaning both emergency power and redundant data storage systems). You'll also need round-the-clock support from the vendors, relevant manufacturers, and/or developers.

Security. From user access policy to encryption, and from firewalling to

malware prevention, data storage security is essential for the future and reputation of your organization.

Speed. How fast your storage works is important, which brings up the topic of SSDs and HDDs. "SSD should have a role in almost every data center," Crump says. "The analysis will help with that decision as to how much." The exact mix of solid-state and rotating disk drives depends on your data center's needs. For instance, providing cloud applications

Key Points

- You'll need to do some research before a storage upgrade.
- Get professional, reputable help as you determine which storage solutions to implement.
- Focus on not only cost and ROI, but also data safety, availability, security, and speed.

Get Started

New data center storage requires an investment in time and money. Ballpark costs for a small to midsized data center storage upgrade could be "anywhere from \$15,000 to \$150,000," according to George Crump, senior analyst at Storage Switzerland.

"The entry point for networked storage components to support an application environment as well as general user storage is likely to be around \$15,000, scaling up with requirements for larger capacity or more extensive data management capabilities," says Jonathan Siegal, senior director of product marketing in the Unified Storage Division at EMC (www.emc.com). However, he adds, "systems appropriate to consolidating and sharing user data or for archiving of files can be deployed for under \$10,000, and some of these offer the option to add high-availability features later."

Action Plan

- Evaluate your organization's needs.
- Enlist expert help.
- Decide on an approach.
- Implement the solution.
- Train your personnel on the new system.

Top Tips

- ✓ When you're considering any significant infrastructure changes related to storage, take the opportunity to look at consolidation and/or virtualization of your storage resources, says Jonathan Siegal, senior director of product marketing in the Unified Storage Division at EMC (www.emc.com).
- ✓ George Crump, senior analyst at Storage Switzerland, thinks a hybrid model makes the most sense when it comes to data center storage these days. He defines it as some data onsite backing up first to disk, then archiving to tape with a replication to another disk in a disaster recovery site or to a cloud storage provider. "The relevant mix is dependent on the capabilities of the organization to provide and maintain their own DR site," Crump adds. "The less [capability], the more likely we would recommend a replication to a cloud storage provider."
- ✓ "Solid-state drives . . . have been proven to be a good solution for demanding applications with high I/O profiles," Siegal says. "More importantly, some vendors have embraced SSDs as a tiered element in their storage systems to handle hot data and automatically rebalance the workload/data location as the data profile changes."



requires a different approach to storage performance than serving content such as video. "We suggest looking for ways to leverage SSD across a broad data set via caching, automated tiering, or using VMware's Storage VMotion to migrate performance-sensitive VMs to an SSD appliance," Crump says.

Manageability. "Product selection should include evaluation for usability as well as the requisite features," Siegal says. "The incremental software should be complementary to the chosen infrastructure and leverage the vendor's product capabilities." Your organization may require new software for storage management, data protection, support, and future storage planning, Siegal adds.

Cost-effectiveness. Think of your storage capital expenses not only in terms of cost per gigabyte, but also cost per I/Ops. Deduplication, virtualization, and

provisioning features can help you avoid wasting money and power on unnecessary drives. "Products with advanced data management features such as thin provisioning of storage can help reduce initial deployment costs based on efficient use of capacity," Siegal says. As for your operating expenses going forward, bear in mind that power-efficient systems translate to low cost of operation. Systems that are less efficient not only require more power to run, but generate more heat, which has a knock-on effect on your cooling costs.

Scalability. Whichever path you take in your storage quest, make sure that the result will let your data center grow with your organization's needs. "In many cases," Crump says, "[storage analysis] software can also provide insight into data and performance growth rates so [you] know how scalable a system [you] should buy."

Implementation

For most organizations, implementation requires third-party help. That doesn't mean, however, that you should sit back and let the vendor or consultants do all the work.

"We recommend being as involved as possible since it makes transition to ownership of the system easier," Crump says. "In some cases, though, that is not realistic because there are not enough people resources available to sit through the implementation."

IT personnel that have helped roll out the changes will be easier to train, too, and can help train others on the new system. Before you know it, your upgraded data center will be better than ever. 

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Complements To Conventional Antivirus Protection

Protect Against Ever-Evolving Threats By Strengthening Your Defenses

ANTIVIRUS IS THE ONE malware defense technology most end users can name, and it's probably the first one that most current workers in IT learned about. Over the decades, it has evolved from occasionally updatable, manually run signature detection scanning into a sophisticated, real-time bulwark against the latest known threats.

However, no antivirus utility is effective against all network dangers. This is especially true at the level of the enterprise, where the exposed surface area is far greater than in a home. With the potential payoff so high for hackers and the potential damage so great for the enterprise, it's no wonder that medium-sized to large organizations turn to a variety of technologies and policies meant to augment the protection antivirus provides.

Have Your AV's Back

An important step in building a united front around antivirus is to determine how much protection your business requires. "Be sure that the proper level of due care and due diligence is applied," says Matthew Scholl, deputy division chief of the Computer Security Division of the Information Technology Laboratory at the National Institute of Standards and Technology. "You don't want to use a \$100 safe to secure a \$10 asset."

At the corporate level, data and reputations are proportionally more precious than in a corner tire store. Unfortunately, 4 to 8% of enterprise PCs are compromised at any given time, according to Peter Firstbrook, Gartner's research director for malware and antispam.

"Enterprise organizations are being penetrated by both consumer malware created with kits and highly targeted advanced threats," Firstbrook said in a recent presentation on targeted attacks. "Advanced persistent threats are real and are exceeding most organizations' defenses."

At the same time, Scholl says, you shouldn't enact cumbersome policies that

Key Points

- Antivirus, while important, can't keep an enterprise network safe on its own.
- Automation is important to the detection and mitigation of unknown threats.
- High-profile targets need to be more proactive in order to guard their data.

get in the way of business. "You don't want to do security for security's sake alone. IT security is a mission enabler and done to ensure the accomplishment of the mission." Some technological examples are isolated systems that may need no antivirus, Scholl says, or real-time control systems on which antivirus would be a burden, doing more harm than good.

Be Proactive

Key to developing an action plan is to gather intelligence. Scholl recommends conducting a risk assessment of your company's vulnerabilities in light of existing threats and the effect a breach could have on your business. This will guide your security efforts that lie beyond the traditional jurisdictions of antivirus and the firewall.

Automation is important for the rapid identification of new threats and reaction to them, Scholl says. Other trends in the enterprise include using tools with common, standard identification and reporting processes for efficiency's sake. Time is critical in the mitigation of a cyber attack, so efficiency gains have positive implications for damage control.

Also, Scholl says, "we have seen a wider use of cryptography for the protection of information at rest and in transit." He also notes "a larger extension of trust to the users and other systems as more and more information and information systems become interconnected and dependent on one another."

User trust speaks to the endpoint, the part of the ecosystem that's always on an IT security chief's mind. "Full protection at the endpoint will require a cocktail approach for all stages of the attack cycle," Firstbrook says. "While signature-based detection is still the most effective way to detect the payloads for known mass-propagation threats, it is not effective against rapidly morphing threats, targeted threats, and new threats."

The other side of the blacklisting coin, where increasingly bloated signature lists define malware so it can be detected and blocked, is whitelisting, or pre-approval of innocent software. "Signature solutions will increasingly incorporate both known threats and known good applications," Firstbrook says.

Gartner predicts that by 2015, more than half of organizations will institute a "default deny" management policy to restrict the applications that users can install. Along with whitelists, Firstbrook says, "proactive application vulnerability testing should be employed to deny advanced targeted threats the ability to install executables on servers and PCs."

Moving Targets

Government agencies, financial organizations, defense contractors, infrastructure providers, and other high-profile entities need to exceed the norm when it comes to supplemental security practices.

"Operations that are constant targets of cybercrime and other advanced threats need to add lean-forward capabilities to have continual visibility into

potential attacks and compromises," Firstbrook says. "The use of specialized threat detection, network forensics, and situational awareness technologies can be very effective in quickly detecting and reacting to the first stages of an advanced, targeted threat," he says, although they do require resources with high levels of skill to be effective.

Gartner recommends focusing on high-priority security controls such as the SANS Institute's Consensus Audit, Firstbrook says. It's also crucial to beef up the efficacy of change control/configuration management, intrusion prevention, vulnerability management, and privilege management, he says.

Yearly or quarterly auditing may not be enough at this level, Firstbrook says, indicating that there's a move afoot toward more continuous monitoring. He also mentions SIEM (security information and event management) products and other approaches that correlate information across defense silos.

Research is constantly guiding development in the network defense field, mainly as white hats and black hats reveal new attack vectors. "We are also hoping to learn from some great work being done in the fields of big data and data analytics to help us know what is going on in our enterprises," Scholl says.

It's a complex field that all boils down to something very simple: protecting the enterprise network. "The real key is to both avoid as many attacks as possible and [to react] more rapidly to those that just can't be avoided," Firstbrook says. P

Policies & Practices

Supplements to antivirus don't all take the form of blinking boxes in the data center. Some are rules handed down from the IT security head on what users can and can't do. These may be enforceable through technological or mechanical means, such as "don't plug in strange USB flash drives," or simply verbally, such as "don't reuse your password for anything else." Regardless, they're all part of the security ecosystem of any enterprise.

AT&T Is Top U.S. ISP

AT&T took the top spot as the largest Internet service provider in the United States, according to comScore. The analytics firm found that AT&T earned 20% of Internet traffic, followed by Verizon with 12% of the traffic. With a 7% share, CenturyLink/Qwest took the No. 3 spot, followed by TW Telecom, Level 3, and Comcast with 5% of the market each. Although the small business sector serves as a more competitive ISP market, AT&T was also the clear leader in the large business market, with a 28% share of Internet traffic. AT&T is currently the telecommunications market leader

in terms of revenue, as well. The company's revenue totaled \$124.3 billion in 2010.

H-1B Visa Cap Filled

The USCIS (U.S. Citizenship and Immigration Services) announced that the H-1B visa cap for 2012 has been filled at a quicker pace this year, a full two months earlier than last year. The visas are provided to foreign workers entering the United States to take positions requiring specialized, technical expertise such as scientists, engineers, or computer programmers. According to USCIS, 65,000 foreign workers are allowed a visa under

the H-1B cap annually, as well as 20,000 visas reserved for advanced degree foreign workers. H-1B petitions are accepted starting April 1 of each year; this year, the allotment was filled Nov. 22.

Nielsen Releases Latest Smartphone Numbers

Android and Apple still top the heap when it comes to smartphone market shares, according to recent Nielsen figures, with Android devices claiming 42.8% of the market and Apple iPhones garnering 28.3%. RIM's BlackBerry platform came in third with 17.8% of the market. Broken down by manufacturer,

HTC was the top Android device maker, with 15% of the overall smartphone market; Motorola devices claimed 10.4%, Samsung devices took 10.1%, and other Android-based devices held 7.2%. Nielsen also found that 44% of all U.S. mobile phone users own smartphones.

Study Highlights Need For Better EHR Systems As Deployments Increase

A new IDC Health Insights report shows that more than 80% of healthcare providers will have an EHR (electronic health

record) system in place by 2016—a figure that currently stands at 25%. The study examined EHR vendors as well as practices with 20 or more providers and found that many healthcare providers are struggling with EHR interfaces not being intuitive enough or not meeting their needs. The researchers believe the EHR market is going to become increasingly competitive as demand grows and that vendors must work harder to produce offerings that are more user-friendly, are compatible with mobile devices, and have broader features and functionality in order to compete.

News



BUYING TIPS:

Data Center Cleaning Services



CLEANLINESS IS IMPORTANT, and never more so than when talking about your company's data center. As Rich Hill, president of Data Clean Corp. (www.dataclean.com), points out, "Application of ISO 14644-1, Class 8, and management of coarse and fine particles suggests that a data center should be as clean as possible." This means that any contracted cleaning service must be equipped to "remove visible contamination for aesthetic value and remove coarse and fine contamination, which, if disturbed, could reasonably contribute to excessive airborne contamination," Hill says.

✓ *Experience required.*

Not all cleaning is created equal. Although janitorial services may do an excellent job of keeping offices and workspaces free of standard-fare workplace debris, they are usually not equipped to clean data centers, an undertaking that requires specialized training and years of experience. "A professional data center cleaning company will be one that has many years of experience cleaning data centers, utilizes industry standards for cleaning, and can provide assistance with customized maintenance plans for your particular site," says Kevin Vickery, president of ProSource Mission Critical Services (www.team-prosource.com).

Typical services should include subfloor plenum cleaning, raised floor cleaning, equipment surface cleaning, ceiling cleaning, and subfloor concrete encapsulation. A professional data center cleaning company will be dedicated to providing these kinds of services, whereas even the best janitorial service will not be able to provide them.

✓ *Pricing.*

Hector Gallardo, senior account manager at Plenum Cleaning Services (www.plenumcleaning.com), notes that whereas you can expect to pay from 50 cents to \$1.20 per square foot for professional data center cleaning, few commercial janitorial services could provide those services at any price. Gallardo also cautions against taking the inexpensive way out: "The lowest bid is not necessarily providing the level of service you want and need," he notes.

✓ *Due diligence.*

Gallardo further recommends asking whether the cleaning company's workers are full-time employees or contracted

temps, requesting a demonstration, and asking for a customer satisfaction guarantee. Keep in mind the following: Get a detailed scope of work, including insurance, equipment, and materials; ask if employees are background-checked and drug-screened; check inside the plenum and on the underside of the access floor tiles for cleanliness; ensure that all tiles are lifted and cleaned on all sides, especially concrete-filled waffle tiles, which often have concrete residue from the manufacturer and other contaminants; and do not allow anyone to use liquids (or machines that require liquid) to clean

your data center. Last but not least, says Gallardo, be sure to periodically check the work in progress.

✓ *Keep it clean.*

Once your data center is cleaned to your satisfaction, you should do your part to ensure that it stays as clean as possible, Hill says: Don't allow food or drink in the data center, place contamination control mats at all entrances, and don't allow dirty carts or materials inside the data center. If drilling inside is necessary, appropriate safeguards must be employed to limit migration of contaminants. □

BUYERS' CHECKLIST

- ✓ Get a detailed scope of work.
- ✓ Require that employees be background-checked and drug-screened.
- ✓ Check the work in progress periodically.
- ✓ Do not allow the use of liquids of any kind to clean your data center.

KEY TERMS

Airborne contamination.

Gaseous and particulate contamination that can lead to equipment failure; often gauged by particulate sampling.

ISO 14644-1.

An international standard for cleanrooms and controlled environments.

Particulate migration.

The movement of contaminants from one sector or piece of equipment to another, often as a result of the contaminant changing form as it's crushed and spread.

Plenum.

An enclosed space (often beneath floors or in ceilings) used for HVAC, cabling, etc.

PRODUCT SPOTLIGHT

Data Center Cleaning Services

Company
Description

Controlled Contamination Services

Specializing in working with data centers of all sizes, Controlled Contamination Services can clean the most sensitive components to rid your data center of fine particles, residue buildup, and other contaminants. Professionals will clean server rooms with the latest micro-cleaning techniques. Controlled Contamination Services performs background checks on its own employees to ensure that your facilities and equipment are in the right hands.

- Services for UPS rooms, computer rooms, and network control centers
- Proper cleaning materials reduce electrostatic charges and protect sensitive environments
- Cleaning services also disinfect raised floor areas and command centers
- Removes dust that air filters can't catch

Best For: Data centers with sensitive equipment that needs cleaning.



Data Clean

For more than 30 years, Data Clean has been trusted by thousands of controlled environments worldwide. Data Clean specializes in maintenance and the identification, cleaning, and remediation of contamination that costs you where it counts: reduced productivity, customer satisfaction, downtime, and lost revenue.

- Specializes in controlled environments: data centers, computer rooms, and cleanrooms
- Full-service branches located in the United States, Canada, Mexico, Saudi Arabia, and Asia
- Flexible scheduling 24/7
- Dedicated workforce of highly trained and uniformed technicians
- 100% satisfaction guarantee

Best For: Data centers that demand detail-oriented cleaning, regular maintenance, and post-construction cleaning.



Data-Tec Systems

Data-Tec Systems specializes in servicing a variety of IT-related facilities, including computer rooms, server rooms, print facilities, MDF rooms, item processing rooms, and even general office areas on raised flooring. Data-Tec Systems has been providing maintenance services since 1991 and can care for equipment, tile, subfloor, and access floor cleaning as a complete package. Data-Tec Systems employs trained technicians who know how to manage delicate IT equipment while cleaning data center rooms.



- Periodic computer room exterior shell cleaning
- Access floor tile surface cleaning with pretreated, environmentally safe cleaners
- Subfloor tack cloth wipe-down
- Access floor installation and replacement

Best For: Data centers that utilize multiple rooms.

Company
Description

Premier Solutions Co.

Since 1997, Premier Solutions Co. has provided DCM (Data Center Maintenance) to the industry, gaining a 97% Excellent rating along the way and generating a 99% client retention rate over the past five years. Premier Solutions Co.'s comprehensive approach to DCM eliminates contaminants within your data center environment, protecting your valuable IT assets from the intrusion of particulates such as dust and dirt. Boasting an extensive crew training program, Premier Solutions Co. conforms to ASHRAE TC9 specifications, has adhered to a 100% uptime policy, and has cleaned more than 10 million square feet of data center flooring. We exceed your expectations!



- Cleans raised floors, subfloors, hardware, and servers, including high-density servers
- IDF/MDF rooms
- Ceiling tile cleaning
- Green Seal-approved products
- Onsite cooling/power assessment

Best For: Enterprise-level data center operations, co-location companies, and IT operations where security is maintained at the highest levels.

ProSource Mission Critical Services

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MISSION CRITICAL SERVICES**

that consist of multilayer, time-sequenced preventive maintenance plans for cleaning the data center's subfloor, raised floor, equipment surfaces, and ceiling areas. ProSource also offers subfloor encapsulation that includes an epoxy coating application to prevent subfloor plenum dust. Additionally, ProSource offers many products to help prevent contamination and static build-up in the data center, such as contamination control sticky mats, bypass airflow grommets and blanking panels, antistatic cleaning chemicals, and raised floor supplies.

- Standard service options include annual, semi-annual, quarterly, and monthly preventive maintenance service plans
- Customized plans are available to meet the specific needs of individual facilities
- Raised floor surface cleaning features Pro-Tek and Microfiber Flat Mopping System

Best For: Data centers that want to prevent the accumulation of dust and contamination that can cause unwanted downtime.

Sealco



Sealco specializes in cleaning and maintaining computer rooms and their support equipment. Whether it's post-construction cleaning or a preventive maintenance program, Sealco's services will allow your data center to meet today's environmental needs at an affordable price. Acknowledging the customer's concern for safety and security, all Sealco technicians receive extensive background checks and training in data center operations.

- 26 years in the data center cleaning industry
- Permanent full-time employees are background-checked and drug-tested both before and during employment
- AirSeal bypass airflow programs designed to decrease energy consumption and increase infrastructure capacity
- Full line of computer room products
- Zinc whisker remediation
- Nationwide services

Best For: Any IT environment that needs cleaning services performed on any scale.

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

GCA Services Group

GCA Services Group does more than simply clean your data center; it offers a host of facility maintenance programs suited for the needs of individual data centers. GCA Services also offers custom Green Cleaning to ensure the health and safety of occupants while ensuring that it uses the most environmentally friendly methods available.



- Services adhere to cGMP techniques, IEST Federal Standards, and ISO Cleanroom Operations Standards
- Maintains bio-pharmaceutical, semiconductor, aerospace, bio-safety, chemical, defense, nanotechnology, and optics environments
- Sterile environment cleaning includes decontamination, disinfection, gown room management, lab support services, and more
- The Green Cleaning program provides custodial effectiveness assessments, sustainable cleaning processes, and certified sustainable chemicals while complying with GREENGUARD and offering Green Seal-compliant products

Best For: Environmentally conscious data centers.

Paragon International



Paragon International services more than 30 million square feet of critical environments annually, including medical, pharmaceutical, micro-electronic cleanrooms and data centers. Uniformed, meticulous technicians routinely exceed ISO 14644-1 for cleanrooms and thus help assist clients to cut costs by eliminating downtime. Every staff member is familiar with the hazards associated with critical environments and understands the sensitive nature of data center and cleanroom equipment. All staff members are trained by an Atlanta-based operations team, and there are employees in place to help with critical environment cleaning across the United States. All chemicals used have been custom-formulated for Paragon and are ESD where necessary. Paragon also offers free mini-audits to help assess the health of your data center and offer suggestions on where improvements can be made.

- Post-construction cleaning, access floor cleaning, disaster recovery, equipment cleaning, and microelectronic equipment decontamination
- ESD concrete sealing using custom formulated sealer
- Pre- and post-cleaning environmental reports and particle counts
- Air cooling efficiency auditing and custom cooling solutions
- Pest and rodent remediation

Best For: Companies with cleanrooms or critical environments of any sort—data centers, pharmaceutical environments, and medical or critical environment manufacturing.

Plenum Cleaning Services

Plenum Cleaning Services cleans data centers, telecom centers, and MDF and IDF rooms, as well as power/electrical rooms in accordance with ISO 14644 standards, without introducing any liquids or scrubbing machines that require liquid. Plenum Cleaning Services can customize a data center cleaning program to meet your business and budgetary needs. Available services include cleaning of plenums, access floor tiles (all sides), access floor frames, vinyl composition tile floors (strip and wax), hardware, equipment, cages, fences, overhead cable trays, lights, furniture, and wall fixtures. The company also offers post data center construction cleaning.



- Improves the static dissipation properties and prolongs the condition of the high-pressure laminate access floor
- Lowers cooling costs by reducing air density and improving air quality by removing 99.999% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.12 micron or larger
- Prolongs the lifetime of hardware and equipment by maintaining optimal operating conditions, including airflow and temperature
- Improves aesthetics
- Provides unsurpassed service and offers a 100% customer satisfaction guarantee
- References available with written estimate

Best For: Preventing costly downtime related to thermal shutdown as a result of components overheating due to dust and debris buildup.

SPEC-CLEAN

SPEC-CLEAN provides continuous maintenance programs and post-construction specialized cleaning that's based on the needs of your data center or critical environment with flexible scheduling and full-time trained technicians. SPEC-CLEAN services include exterior and interior hardware cleaning, HEPA vacuuming of the subfloor, and reconditioning the surface of raised floor and non-raised floor environments. SPEC-CLEAN also provides environmental follow-up site reports, emergency cleaning, and zinc whisker remediation.



- Complete cleaning of exterior and interior of server cabinets
- HEPA vacuuming takes care of dust on exterior cabinets, monitors, and flat surfaces
- Client walk-throughs to ensure that you're 100% satisfied
- Cleaning solutions used are approved for data centers and mission-critical environments

Best For: Data center managers who like reliable, detail-oriented deep cleaning.

Specialty Cleaning Services



Specialty Cleaning Services can effectively clean data centers, while also taking care of cleanroom, industrial lighting, acoustical ceiling tile, and post-construction cleaning. Offering five basic services, Specialty Cleaning Services uses HEPA-filtered vacuums, lint-free dust cloths, and sterile cleaning agents to complete commercial cleaning tasks such as exterior hardware cleaning, top-of-floor cleaning, underfloor plenum cleaning, above-ceiling cleaning, air sampling, and environmental reports.

- Heavy-duty cleaning for post-construction facilities
- Cleanroom sanitation for large facilities
- Water-based, nontoxic cleaning materials for acoustical ceiling tile
- Services are available for scheduled intervals throughout the year

Best For: Data centers that want detailed, hands-on professional cleaning services.

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SIX QUICK TIPS

Troubleshooting VPNs

Keep Connections Secure & Stable

VPNs HAVE EMERGED as a safe way for users to exchange information from beyond the enterprise's firewall. In addition to doing a good job of keeping bad guys from being able to intercept data, VPN connections are easy to use—once they are up and running. The problem is that a number of things, including IP address conflicts and firewall configuration problems, can break the links.

Troubleshooting VPN connections can cause a lot of headaches, and with overstretched IT staff, fixing problems can eat up hours, if not days, of time. But keeping a cool head and methodically applying troubleshooting processes can spare you and your users a lot of grief.

✓ Watch Out For Internet Filters

Broadband service providers often filter out different types of traffic and lock down certain port numbers. Unfortunately, filters can block VPN connections, as well, which is why VPNs sometimes do not connect or the connections are too slow, says Neil Rickard, a vice president at Gartner. The solution is to make sure that your enterprise's VPN can work around filters by changing port numbers when a filter blocks VPN traffic, Rickard says.

However, sometimes Internet filters can break VPN tools that automatically change ports. A remedy is to guarantee that you are using a commercial-grade Internet service that will not block traffic, which is feasible when selecting a single service provider for users to connect from a remote location that will not change.

To solve the problem for users who often change locations, one solution is to make cellular-network VPN connections available on an as-needed basis, Rickard says. "In an ideal world, you can always fall back on a mobile network, which is more expensive, but at least you know what you are getting," Rickard says. "But there is the cost and it's not as fast, and you need to make sure that people try to use the broadband VPN connection first."

✓ Prioritize Traffic

A user may absolutely need to send a file to the enterprise from a remote location but cannot establish a link due to saturation of the network's bandwidth. The user then wastes her time calling the IT help desk staffer, who discovers that 10 videoconferences are taking place simultaneously and are hogging all of the capacity. To prevent this scenario from happening, tools exist that prioritize traffic so that a single application type does not use up all of the available VPN bandwidth, Rickard says.

"If you have a VPN line coming out of a site, then you want to make sure that when someone hits on file transfer then you do not want to drop all of the VoIP calls," Rickard says. "You might say it is an oxymoron because you are adding quality of service, while the Internet network does not have quality of service. But actually, it is better to make sure that you do not trip over your own and ensure that

your applications do not screw up your VPN applications."

✓ Transition To IPv6

As IPv4 network addresses dwindle, IT departments will inevitably have to contend with IPv6 addresses. So millions of networks will have IPv6 addresses, which also means potential trouble for IPv4 and IPv6 VPN connections.

Alec Peterson, CTO at Message Systems (www.messagesystems.com), says IPv6 VPN connections introduce challenges to IT admins much sooner than the rest of the infrastructure, because the sites that VPN clients are deployed from will be among the first to be allocated IPv6 addresses exclusively. "Pinpointing the root cause of a VPN problem can always be a challenge, and certainly dual-stack implementations will introduce some challenges, especially when the IPv4 network is working fine, but the IPv6 network is not."

In a dual-stack environment, IPv4 and IPv6 connections must be checked twice—once for IPv4 and once for IPv6, Peterson says. "It would also certainly help to know what the VPN's policy is in terms of which IP address to choose, such as whether to use the IPv4 address or the IPv6 address, because that will certainly help zero in on where the problem is," Peterson says.

It is also important to keep in mind that IPv4 and IPv6 operate on two different networks. "They use entirely different routing tables, and as such, while they may travel across the same physical link, it is important to think of them completely separately," Peterson says. "Taking steps to verify which local address is being used will help focus diagnostic steps, since trying to diagnose a problem with an IPv6 connection by using IPv4 diagnostic tools will yield extremely frustrating results."

✓ Change The Address To Resolve Conflicts

Chris Hopen, CEO and co-founder of Homepipe (www.homepipe.net), says one potential issue is that a user on the road may establish a VPN connection but cannot send or receive data through the tunnel. The cause in this case is likely an IP address conflict because the assigned VPN address matches the one on the network. The server thus blocks data transfer because it does not allow data to be sent to an endpoint that shares the same address.

An immediate, yet not elegant, solution to the problem is to change the location of the endpoint. This involves having the user relocate to a different public hotspot or wired network to log in with a different address.

However, a more practical way to avoid the problem is to invest in VPN devices that can automatically change addresses when the conflict occurs. "The VPN devices look at the IP address conflicts to come up with different routing or IP address schemes dynamically and to be able to circumvent around those problems, which should be a key feature of the VPN product," Hopen says. □

Best Tip:

✓ Know When To Seek Professional Help

Sometimes nothing works. After you have tried all of the troubleshooting steps outlined above and have scoured the forums for a solution, the problem remains unresolved. In this case, third-party expertise can come in handy and save a lot of time, says Denzil Wessels, technical marketing manager for Juniper Networks (www.juniper.net).

"If you look at all of the different pieces of knowledge someone has to have to [troubleshoot] these things correctly, it draws from a whole different set of backgrounds. This is where partners can come into play," Wessels says.

Most Practical Tip:

✓ Watch Out For Firewalls

Firewall settings are the likely source of a problem when no connection can be established with a device behind a firewall and the logs in that device show that it is not receiving packets, says Randy Ottman, director of product management for Enterasys Networks (www.enterasys.com).

Fixing firewall setting problems is straightforward by making modifications to the firewall's configuration. "Most firewalls will block VPN traffic by default," Ottman says. "One needs to ensure that the firewall is configured to allow the VPN protocols to pass through. This is often referred to as 'pin holing' the firewall for the VPN traffic."

BONUS TIPS:

✓ Get deep packet inspection.

Deep packet inspection is a helpful tool to pinpoint problems and to monitor overall VPN performance. "It is crucial to be able to track where VPN stuff is going when troubleshooting VPNs," says Neil Rickard, a vice president at Gartner. "But most people haven't bothered—they throw lots of capacity and hope it will be fine."

✓ Check for configuration mistakes.

VPN configuration problems are a common cause of mishaps. "While configuration settings such as encryption need to be the same on both sides of a VPN, the settings are actually mirror images of each other," says Randy Ottman, director of product management for Enterasys Networks (www.enterasys.com).

"Simply copying a device configuration from one side of a VPN to another is a common mistake, since many configuration settings relate to source and destination points of the VPN tunnel, which are mirrored and not simply copied, for each end." To remedy the problem, double-check the symmetry of the configuration for each end.



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Hire A Data Center Cleaning Service

It's All In The Vendor

JUST AS YOUR OWN carpet needs a deep fiber cleaning once in a while, a data center must regularly undergo a top-to-bottom scrubdown. You could purchase maintenance equipment, but how will you know if the results of your cleaning spending spree will optimize your computer room hardware for peak performance in the next two years?

The next logical step, then, is to hire a respectable data center cleaning service. As you research, your decision should be based on what you can leave up to the professionals and which service offers the amenities that will help you maintain the quality conditions within your data center. Before signing any agreement with a data center cleaning service to receive customized maintenance, consider what the experts say is best for you and your data center.

What To Clean

Regardless of how capable your in-house custodial staff may be, they probably lack

the experience to take on the project of monthly dry and damp mop top-floor cleaning, as well as biannual sub-floor servicing. In addition, servers should be cleaned by trained staff. Servers take in particulates faster than they pump them back out, so it's necessary to clean all vent faceplates two to three times per year, according to Bill Montgomery, founder of Premier Solutions Co. (www.premiersolutionsco.com).

"Many times, companies may use the onsite janitorial personnel to clean the data center. This comes with risk in damage and security. If you are using in-house staff for this task, [think about] who trained them," Montgomery says. "Most companies have come to realize that a firm specializing in the cleaning of a data center is the route to go, especially if your data center is a highly critical Tier 3/4 center, where a structured SOP (standard operating procedure) is in place."

Montgomery explains that decontamination of the sub-floor in a raised-floor data center is a time-consuming endeavor.

It requires paying attention to the underworkings, such as alarms and power cords, as centers implement their cooling strategies and monitor the status. "It is paramount for the airflow to not be disrupted during a service," says Montgomery.

In general, data center cleaning services are capable of refreshing your raised floors, under-floors, stringers, pedestals, ceiling tile, and other standard computer room components.

What Not To Clean

Keep in mind there are some cleaning procedures you should avoid altogether, even if your IT department really knows its stuff. Assigning an untrained staff to clean equipment increases the risk of operational downtime and task mismanagement.

Rich DeBlasi, owner of Spec-Clean (www.specclean.com), highlights some of the specific tasks to leave to the reputable vendors. "I would advise against using a shop vacuum to vacuum in the room [and] lifting too many floor tiles at once and not putting them back in the same spot." DeBlasi also recommends that you not clean any exterior equipment surfaces unless you are using a cleaner that is alcohol- and ammonia-free that leaves zero residue.

Down To The Nitty-Gritty

DeBlasi further recommends a number of tips to keep in mind when you're deciding who should handle the delicate job of getting your data center back to pristine condition. "Check how long the company has been in business and [if it has] references. See if you can visit the company's facility and where they do business. Make sure they have the proper cleaning equipment and provide specifications," he says.

According to DeBlasi, an organization should be in business for more than five years, and a reputable cleaning service should have a full-time staff that has been trained working within data center

Key Points

- Top-floor cleaning should take place once a month (and once per quarter at minimum); sub-floor cleaning needs to occur twice per year, ideally. Don't delegate these tasks to janitorial staff. Instead, hire a reputable vendor with proper data cleaning experience.
- To partner with a reliable vendor, research how long it's been in business, whether it offers a quality control system, and if the vendor supports full-time staff with references.
- Most data center cleaning vendors will clean the following features: exterior/interior equipment, raised floors, under floors, stringers, pedestals, carpet, IDF (intermediate distribution frame) room, and ceiling tile.

environments. "Ask for MSDS (Material Safety Data Sheets) for the cleaning solutions they use, and [ensure] they have the proper required insurance in place," DeBlasi says.

Before you conduct any business with the vendor, determine who will be the onsite contact. Ask about the vendor's availability (can you call for 24/7 support?). Don't let the cleaning service finish the job without adding a quality control system in the facility. Don't underestimate the investment your company is making, so be sure to confirm that the vendor plans to document all processes from start to finish and adheres to standard safety protocols.

Ultimately, your budget will determine the extent to which you can decontaminate your data center. The convenient part is that vendors will evaluate your site and assess the areas that need thorough cleaning, and some cleaning services will let you request a no-obligation assessment. P

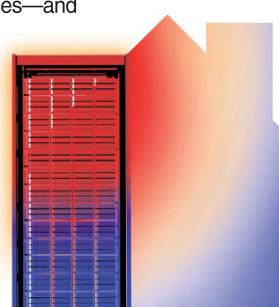
Talking Tips

Familiarizing yourself with data center cleaning vendors involves building a trust-based relationship, like any other business partnership. Bill Montgomery, founder of Premier Solutions Co. (www.premiersolutionsco.com), offers four ways to know if a service can handle the special needs of your company.

- **Listen well.** Attempt to indulge in "data center lingo." If it comes through to you, you will gain a comfort level allowing the vendor in your data center. "Cleaning methods presented should always have a description with a 'why'—this lets you know if they have control of the service or if they rely on another firm to perform a critical task," Montgomery says.
- **Know the company profile.** Does data center cleaning fit well with the company's other offerings, if any? If not, it may be an outsourced service.
- **Review reputations.** Review vendor references, client retention rates, and overall safety compliance.
- **Evaluate personnel.** Research the vendor's method of hiring, its training program and frequency, and the duration the cleaning crew has been in the IT industry.

Researchers Propose Using Servers As "Data Furnaces"

As server farms become denser and produce more and more heat, the resources required to keep them cool skyrocket, at considerable cost to enterprises—and the environment. However, a handful of researchers have proposed a plan in which servers are placed in homes or office/apartment buildings, where they will function as so-called "data furnaces," generating enough heat to replace the home's traditional



furnace. The researchers—two from the University of Virginia and four from Microsoft Research—suggest that having homes host server cabinets could reduce the need for new data centers, require

a fraction of the cost to maintain, and leave a smaller carbon footprint. They also specified that the data furnaces would be best for non-mission-critical or non-time-sensitive operations, such as scientific research, and encryption and

cabinet sensors would be required to maintain data security.

3M & Infor Do Battle Over Software Fees

3M and software maker Infor have entered into a legal battle worth millions of dollars concerning Infor's allegations that 3M breached a contract by using a third-party support provider to help maintain a software program it was licensing from Infor. 3M claims that the software, which it has been using for more than a decade, has been customized to meet the company's needs over the years and therefore 3M chose to outsource support

to Cognizant. 3M says it had Infor's approval to contract with Cognizant, but Infor says 3M breached its contract by giving Cognizant access to intellectual property and is asking 3M to pay up to \$18 million in fees. 3M filed suit in hopes of obtaining a court order saying it is not required to pay Infor.

Global Server Revenue Up 5.2%; IBM Tops HP

According to recent figures from Gartner, worldwide server revenue grew from \$12.32 billion in Q3 2010 to \$12.97 billion in Q3 2011—a gain of 5.2%—and shipments grew 7.2% year over year,

increasing from 2.21 million to 2.37 million. Vendor-wise, IBM overtook HP's top spot with a gain of 3.5% year over year to reach \$3.85 billion in revenue and 29.7% of the market. HP, meanwhile, saw a loss of 3.6% year over year, with revenue of \$3.8 billion and 29.3% of the market. The quarter was a difficult one for HP, in which it fired its CEO, hired another, and debated jettisoning its PC division; the company, under the new leadership of CEO Meg Whitman, is already planning future moves. Rounding out the top five are Dell, with a 6.3% increase; Oracle, which remained the same year over year; and Fujitsu, with a 3.6% increase.

News

CLOUD TIPS & TRICKS

Managing Cloud Performance

Make Sure You're Seeing The Results You Want After Moving To The Cloud

BY NOW, YOUR BUSINESS has very likely either adopted cloud computing technology in some form or is making plans to do so. But now that you have all that virtual power at your fingertips, how can you make sure you get the most out of it? Here are some tips that will help you take full advantage of what's in the cloud—as well as avoid potential pitfalls.

Keep Track Of How It's Doing

It is the responsibility of the cloud service provider to supply users with comprehensive information that outlines overall utilization of the four basic resource types—CPU, memory (RAM), storage, and network—to justify the chosen cloud sizing characteristics. You can get this information through integrated and outside monitoring tools and use it to both measure current utilization and project future growth.

Not all cloud service providers offer systems-level monitoring and performance management, however.

"It's important to consider not just the overall performance of hardware resources but also the application-level performance characteristics of a given system," says Eric Brooks, solutions architect at Logicalis (www.logicalis.com). "This will allow for correct server sizing relative to

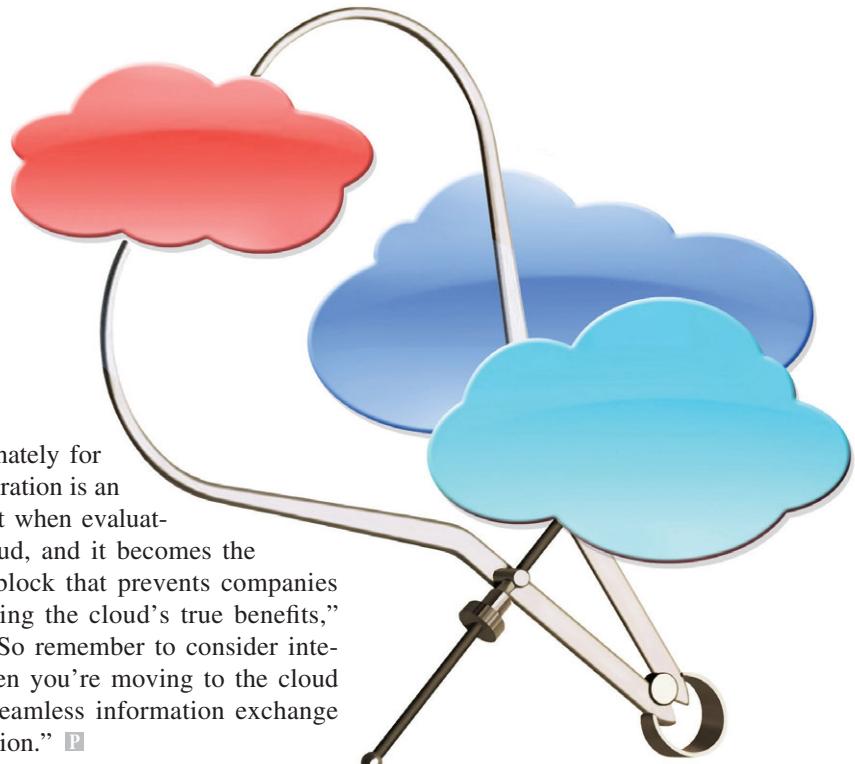
application requirements. Often, application vendors do not take into account the variables introduced when virtualizing systems and tend to overestimate the physical requirements to support their applications."

Integrate Your Cloud Applications

Many companies have moved their applications and processes to the cloud, but once there, they wonder how to get access to their hosted data and make it interact. This is where integration comes in. There are a number of scenarios where cooperation among programs is crucial—for example, integration can help your accounting software talk to your inventory database.

Your service provider should be able to help you with integration solutions, according to Margaret Dawson, vice president of product management at Hubspan (www.hubspan.com), a cloud-based business integration provider.

"Unfortunately for many, integration is an afterthought when evaluating the cloud, and it becomes the stumbling block that prevents companies from realizing the cloud's true benefits," she says. "So remember to consider integration when you're moving to the cloud to ensure seamless information exchange and interaction." **P**



Best Tip: Keep An Eye On Your Bill

The cloud boasts a pay-as-you-go billing structure as one of its biggest selling points, but don't let that lure you into a false sense of security. Just as when you leave machines plugged in at the office, your cloud applications could be running and costing you money even while nobody's using them.

Keep track of what's running when and whether it's really necessary, says Scott Simko, community manager for cloud hosting provider Virtacore Systems (www.virtacore.com). "When you're not using your virtual memory, turn it down to the lowest resource pool to save money," he says.

Also, be aware of minimum charges. Many agreements in the cloud come with per-usage prices but also set thresholds for minimum usage. Make sure you understand the minimum requirements for cloud usage and that your company is hitting those minimums, or any savings could vanish quickly, according to Chris Stephenson, partner and co-founder of Arrive, a strategy consulting firm.

Keith Morris, vice president of marketing at Talari Networks (www.talari.com), also recommends asking your provider about connectivity requirements. "Do they expect you to purchase an expensive leased line or MPLS connectivity to one of their data centers?" he asks. "This could dramatically change the economics of the deployment if you want to move business-critical applications to the cloud."

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Is Cybersecurity Insurance For You?

A Careful Risk Assessment Can Help Determine Whether A Policy Is In Your Future

GIVEN THE GROWTH of increasingly sensitive and valuable information, data centers are more at risk of cybersecurity mishaps than ever before. Security breaches or unplanned downtime can be financially crippling for small to midsized enterprises that often don't have many dollars to spare in the budget. To address those liabilities, SMEs may want to look into signing up for cybersecurity insurance policies, which can be used to protect against losses that result from data breaches and other catastrophic events.

Why Use Cybersecurity Insurance?

Cybersecurity insurance is an appealing option for small to midsized enterprises wanting to protect themselves from losses that accompany data breaches and equipment failures, says Richard Kissel, a senior information security analyst specializing in small business security issues at the National Institute for Standards and Technology.

"There is always the assurance that an SME/SMB (or anyone else) does not know the full extent of the risks assumed by the organization," Kissel says. "No one knows all of the threats that currently exist and that will certainly come in the future. To a certain extent, insurance exists to protect against these general kinds of risks."

According to Jim Whetstone, senior vice president and U.S. technology and privacy manager for Hiscox Specialty (www.hiscoxusa.com), there can be significant costs incurred to respond to a data breach, some mandated by law. "Insurance coverage is available for many costs associated with satisfying these obligations, as well as defending oneself against claims that arise out of these events," Whetstone says. "Insurance can provide stability where many SMEs may not have the ability to self-fund these costs when an event occurs."

"Cybersecurity insurance is [implemented] in addition to the normal expected efforts by an SME/SMB to mitigate risk and to protect the information/computers/networks used in/by the SME/SMB," Kissel adds. "It does not take the place of complying with regulatory requirements."

Key Points

- An insurance policy to deal with residual cybersecurity risks does not absolve a company from taking reasonable security precautions.
- Performing a risk management assessment and determining how much risk the company can tolerate after issues have been addressed through security controls will help you determine how much cybersecurity insurance can help.
- Before selecting a cybersecurity policy, companies should do their homework to select the right insurance company with excellent underwriting experience and a good reputation for processing claims.

The Importance Of Risk Assessments

Deciding whether to invest in cybersecurity insurance depends on an in-depth assessment to determine the risks the SME is facing, risk mitigation efforts to lower the risk as much as feasibly possible, and risk tolerance and risk acceptance decisions by SME management based on the assessment, Kissel says.

According to Kissel, risk assessments help an organization identify and manage its risk. "The result of the risk assessment, plus the risk management efforts of the SME/SMB, will determine the level of residual risk, and that information will help the SMB/SME management to decide whether or not cybersecurity insurance is appropriate for the SMB/SME," he says.

Whetstone adds that although risk assessments can help determine the extent of the exposure and the controls in place to mitigate it, there will always be a residual exposure to which the insurance can apply. He cautions that if the assessment finds too much exposure without adequate event controls, the company may not qualify for the insurance. An assessment, then, can highlight areas where an SME can reduce exposure or increase controls.

Performing A Risk Assessment

Who performs the risk assessment depends on IT's comfort and experience level. "If the SME/SMB IT staff is trained and experienced in conducting a thorough risk assessment, then they could and should perform the risk assessment," Kissel says. "If not, or if management decides that an outside consultant makes better business sense, then outside consultants should be considered and contacted through the usual outsourcing policies of the SMB/SME."

According to Whetstone, many companies perform internal assessments. Whetstone says there is also certainly value in having an unbiased external view from an experienced consultant who can also provide feedback on industry norms, best practices, peer comparisons, and other factors.

"Risk assessments are a lot like weather prediction," says Stephen Northcutt, president of the SANS Technology Institute. "There is some science, but there is also a lot of art and pure dumb good and bad luck."

According to Northcutt, insurance companies rely on actuarial tables, which are created over time from millions of data points. "Information technology is not just new, but rapidly changing and prone

to disruptive innovation, so there is not enough data to produce reliable actuarial tables," Northcutt says, adding that an outside consultant might be able to help narrow down what data is most valuable when performing a risk assessment.

Northcutt says that if an IT department is going to assess risk internally, it should follow a prescriptive framework such as PCI DSS (Payment Card Industry Data Security Standard) or the SANS Institute's 20 Critical Controls. "They should push to gather metrics, understand them, and get that data presented as information with a security dashboard," Northcutt says. Additionally, he advises IT to brainstorm what the organization killers are and what the scenarios are where the organization would not survive or, if it did, would be badly damaged.

"Finally, try to figure out how an attacker might be able to mount a successful attack against a worst case asset and try to implement countermeasures or safeguards," Northcutt says.

Once you have all the information about your potential risks and problem spots, you'll be better able to present that information to a cybersecurity insurance company and decide whether a policy makes sense for your enterprise. □

Do Your Policy Homework

Jim Whetstone, senior vice president and U.S. technology and privacy manager for Hiscox Specialty (www.hiscoxusa.com), says SMEs should work with cybersecurity insurance brokers to identify what criteria are most important to their organizations, such as underwriting experience, breadth of coverage, pricing, claims handling experience, and reputation. "Breadth of coverage and pricing mean little if the insurer is not there for you when you have a claim," he says.

Whetstone recommends that underwriting experience, claims handling experience, and reputation should be at the top of the list.

As for the application process, Whetstone says, the information required by the policy application varies depending on the insurance company. Generally it is some combination of a disclosure of the exposure base, such as revenues, number of sensitive records, and other pertinent information; loss controls, such as the use of encryption, firewalls, and other controls; response preparedness, such as a documented and tested incident response plan; and loss history that includes prior events, losses, and claims.

MIT Making Strides In Light-Based Computing

Researchers at MIT announced that they have developed a component called a "diode for light" that will allow photonic chips, which replace electrons with light beams, to be built using the same standard silicon material already used in most electronic devices. The diode is made from a transparent magnetic material called garnet that allows light to travel in one direction but blocks it from traveling the opposite direction, removing the inefficiency caused by stray light reflections. In electron-based chips, light must be converted to electronic form and then

converted back again; the researchers' diode could eliminate the conversion steps, increasing speed and efficiency for faster computing.

E-Prescribing Faces Communication & Consistency Issues

A study sponsored by the Agency for Healthcare Research and Quality and performed by the Center for Studying Health System Change found that the e-prescription process has not been entirely easy for physicians or pharmacies. Respondents from 24 physician practices, 48 community pharmacies,

and three mail-order pharmacies said that transmitting new prescriptions seemed less problematic than processing renewals, and many were frustrated with having to manually change or edit information in prescriptions to ensure accurate patient instructions and drug names. Additionally, 75% of the physician practices surveyed claimed to have difficulties with electronically transmitting prescription orders to mail-order pharmacy companies, often choosing instead to fax the information to ensure its arrival. Suggested remedies to e-prescribing problems include more thorough user training, improved technical standards

and system design, and better connectivity with mail-order pharmacies.

Survey Highlights Top Security Challenges

In its recently released "State of the Endpoint" study, the Ponemon Institute named virtualization, third-party applications, and the increased use of mobile devices such as smartphones among the top security challenges weighing on enterprise security budgets and strategies. The study, which was sponsored by

Lumension, surveyed nearly 700 information and security managers and found that respondents were also concerned by a perceived lack of collaboration and communication between IT and non-IT business groups. To combat threats, the top five security solutions respondents are looking to deploy are whitelisting (56%), application control of firewalls/gateways (55%), integrated endpoint security suites (46%), mobile device management (45%), and SEIM (security event and incident management; 38%).





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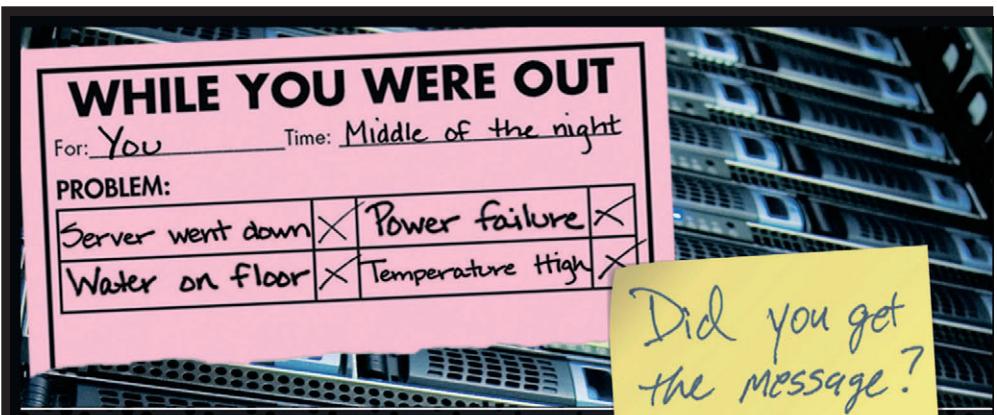
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MOST COMPANIES PERFORM some form of testing on their products to ensure that they are in good working condition before being shipped to customers, but Server Technology, experts at producing the highest standard of quality PDUs, goes above and beyond basic testing with its 100% Product Performance Testing. The process includes putting each product through a series of tests designed to push it to its limits, which results in high-quality products with low failure rates.

The reason Server Technology decided to perform these tests on every product for 27 years is much simpler than you may think. "The worst thing for a customer is to open a box, plug a product in, and it doesn't work," says Jim Scherr, director of sales and operations at PDUs Direct (www.pdusdirect.com), the master distributor of Server Technology PDUs. "The overarching reason for doing the power testing is simple: to make sure that any product that leaves our building functions as per designed and meets all the criteria of the customer. We're committed to always providing the quality and value that our customers expect."

The first and foremost benefit of Server Technology's 100% Product Performance Testing is that customers can have peace of mind knowing that the products powering their mission-critical devices work as

designed and have less of a chance to fail, according to Scherr. Server Technology's major goal is to help keep their customers' physical infrastructure up and running so they can be as productive as possible.

Testing From Beginning To End

With 100% Product Performance Testing, it isn't just a matter of testing a product after it's completely built. In fact, these products are tested throughout the manufacturing

The variety of tests performed on the products run the gamut from thermal, shock, and vibration testing to compliance with ATE (Automated Test Equipment) tests, as well. It all leads to the final tests, which are designed to test the product in real-world applications and make sure they are ready for the customer once and for all. All tests are performed in a state-of-the-art Power Lab.

"All products are tested at all stages, starting from when the product is in its infancy

to when it has become finalized," Scherr says. "Just before it goes out the door after the final modification, we test it once again. We don't just test it by plugging it in and making sure the lights come on; we plug it in and we load every receptacle.

We just want to make sure that, functionally, the product fully works under the conditions it will see in the future."

A Partnership Between Manufacturer & Customer

PDUs Direct sells a wide variety of Server Technology products, including basic, switched, and metered Rack PDUs, and all of them go through the 100% Product Performance Testing process. It's a combination of well-built, easy-to-use products and a

degree of testing that isn't often seen in the IT industry. Current customers notice this because, according to Scherr, they "really appreciate the due diligence being done prior to them getting the products."

And Server Technology, along with PDUs Direct, sees its relationship with customers as a mutual partnership, which is why 100% Product Performance Testing was put into practice in the first place. These companies strive to provide the best products available with the highest amount of testing and lowest failure rates so that their customers can focus on running their businesses instead of fixing infrastructure issues.

"The quality, reliability, and performance of our products are the most important benefits—to our customers and to us," Scherr says. "It's what we've built the company on and what we stand for every day." □

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BUYING TIPS:

Fire Protection

YOU PROBABLY ALREADY HAVE a lot on your plate if you're in charge of protecting the data center. Hackers, hardware and software failures, and changes to the physical infrastructure are all concerns. Fire protection is one issue that probably isn't on top of your list, but if your data center isn't capable of suppressing fires, all the rest of your hard work may be for naught. Here, we'll examine what key features you should look for when investing in data center fire protection.

Alert options. You'll need to invest in a smoke and fire detection system that can alert employees and IT staff to problems. Some models are capable of detecting the various stages of a fire, such as visible smoke vs. flaming fire vs. intense heat, to allow you to set off alarms or activate various stages of fire protection.

Regardless of which type of suppressant is selected, you'll need to know at what stage during a fire the detection system should trigger the suppressant to release. According to Steve Joseph, director of market development for Xtralis (www.xtralis.com), "Unnecessary or poorly timed suppression dumps must be avoided since the cost of such mistakes is enormous, because a volume of clean agent sufficient for even a modestly sized area can cost tens of thousands of dollars to replace." In short, effective detection is key, as the suppression system is only as good as the detection system initiating the release.

Suppression options. Fire protection is generally broken down into water and non-water options. The obvious downside to using a sprinkler system is that electronic devices and water can be a bad combination, especially in situations that are started by electrical fires. Thus, most data centers opt to go with a clean agent suppression system, which is designed to leave no residue and is safe for both electronics and people, unlike some chemical-based fire protection. "Some clean agent suppressants are complex chemical compounds which act on the fire in various ways, such as reducing the heat, while others are pure inert gases which displace the oxygen to inhibit combustion," Joseph says.

Emergency power off. Nearly all data centers also install an EPO (emergency power off) system, which will shut off any electricity to the area where the detector senses a fire. Look for models with industrial-grade contactors, heavy-duty relays, and hard-piped wiring to prevent any accidental shut-offs. The EPO will need to be able to automatically work with your fire detection system. □



BUYERS' CHECKLIST

- ✓ Find a smoke/fire detection system that meets the needs of your data center, in terms of stages of fire protection and number of physical detection locations.
- ✓ Research the various clean agent suppression options and make sure your sprinkler system is capable of working with the clean agent suppression system.
- ✓ Invest in an emergency power off system to shut off electricity when a fire is detected.

KEY TERMS

Agent storage container.

The assembly or unit that stores the clean agent fire suppression liquid until it needs to be released when prompted by the suppression control panel.

Class C.

Fire breakouts that involve electrical equipment where a non-conductive extinguishing agent must be used.

Clean agent.

A type of fire suppression system that leaves no traces behind and won't damage electronic equipment.

Deluge.

A system where all the sprinklers connected to the water piping system are open. If the deluge valve opens due to a signal from the fire alarm system, the entire area will be sprayed with water.

Early warning smoke detector.

A passive detector that uses ionization and photoelectric sensors.

Heat detector.

A unit that sends a response when the convection of thermal energy changes the temperature of the device's heat-sensitive element.

Suppression control panel.

The unit that houses the interface you use to control the fire protection system, including managing the smoke and fire detection systems and report alerts or sound alarms.

Very early warning smoke detector.

A type of smoke detector that actively samples air particles via aspiration to find non-visible smoke.

PRODUCT SPOTLIGHT

Fire Protection

Product

Brady Photoluminescent Signs



Description

Brady offers a full line of electricity-free photoluminescent signs to help meet your egress needs. Photoluminescent signs are ideal for green buildings and can help builders earn points toward a variety of LEED credits. Brady's photoluminescent signs are a perfect option for areas with possible electrical power failure. Available in a variety of materials and sizes, Brady photoluminescent signs are 100% reliable and help facilitate safe evacuation during fires, power outages, and emergency situations.

- Non-electrical signs that are visible without power
- Mark doors and paths for safe evacuation during emergencies
- Signs are durable and easy to install

Best For: Companies that need reliable lighted signs, especially in darker areas or places prone to power outage.

Brady Fire Signs



Brady fire signs help you quickly identify fire exits, fire extinguishers, and other fire suppression equipment in your facility. Additionally, Brady fire signs can be used as a guide for proper emergency escapes. With exit and glow-in-the-dark fire signs, you can clearly indicate flammable materials and mark your entire facility for emergency safety. Brady fire signs are available in a variety of sizes, materials, and messages.

- Mark emergency paths and fire exits
- Label flammable materials or fire extinguishers and alarms
- Glow-in-the-dark signs are easy to see during power outages

Best For: Any business that needs clearly marked paths and fire exits in case of an emergency.

Fike SigniFire IP Video Flame & Smoke Detection Camera



The SigniFire IP represents a family of turnkey flame, smoke, and intrusion detection camera solutions that visually detect the presence of fire or smoke at its source, independent of airflow in the area. This technology offers a critical advantage for early warning fire detection, identifying and reacting to fire, and protecting lives and property.

- Detects flame in seconds
- Supplies vital, situational, live video to remote locations
- Provides video surveillance capabilities
- Communicates with fire alarm systems
- Provides prerecorded video forensic evidence for future fire investigations

Best For: Enterprises looking to identify smoke in large spaces and have video evidence for insurance purposes.

Product

Firelock Modular Server Vaulting



Description

With Firelock's Modular Server Vaulting, you get a custom-designed vault that's built to suit your needs.

A Firelock modular vault is an enclosure with integrated environmental monitors and fire suppression components, which makes it easier to protect the contents from a fire on the outside. The vaults protect your valuable components from fire while you monitor the servers and equipment from a remote location.

- Class 125 four-hour rated vault door
- Smoke- and heat-activated hydraulic door closer
- Environmental/alarm monitoring
- CCTV surveillance
- Novec 1230 fire suppression
- Watershield roof deck
- Fire-rated electrical cable trays
- Master power switch

Best For: Enterprises that want to ensure mission-critical operations by protecting key equipment in an isolated, secure, and fire-protected area.

Mariooff HI-FOG Water Mist Fire Protection System



The HI-FOG system from Mariooff discharges a fine water mist at high velocity to suppress and extinguish fire. This setup can be used in place of deluge, gas, foam, dry chemical, traditional sprinkler, and other types of fixed fire protection. HI-FOG uses up to 90% less water than a conventional sprinkler system, which means cleanup is fast and business downtime is kept to a minimum. Fire, water, heat, and smoke damage are minimized, as well, and it stops the fire from spreading or reigniting. A typical HI-FOG system in a data center consists of a high-pressure pump unit, a small water supply tank, section valves, small-diameter stainless steel tubing, and HI-FOG sprayheads.

- Uses a three-prong approach: cooling, radiant heat blocking, and local oxygen inerting
- Offers total facility fire protection to simplify maintenance and deliver cost savings
- Minimizes business disruption because system discharge is localized at only the point of the fire
- Use of various systems configuration points minimizes risk of leakage and false discharges
- Spaces will not need to be evacuated or closed off for HI-FOG to be activated
- Can be easily expanded to new phases of a data center facility
- Supports environmentally sustainable design

Best For: Organizations that want a system that covers all of their fire protection needs.

Periphman Aero-K



Periphman's Aero-K fire suppression system uses potassium-based aerosol generators that can extinguish a fire in seconds. The aerosol won't harm electronics or electronic media such as tapes and disks or the health of facility personnel. Aero-K aerosol generators are compact and easy to install and feature multiple smoke detectors that limit the chance of accidental discharge.

- Available as thermal or electrical units
- Won't corrode steel, plastic, nickel, brass, zinc, copper, aluminum, or other commonly used composites
- Leaves little residue after venting
- Ecologically friendly with no agents that can harm the ozone layer
- Control panel with battery backup in case of power outage

Best For: Information technology and telecommunications industries.

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Fike Prolnert Gas Fire Suppression System



Fike's Prolnert system uses inert gas fire suppression technology to put out fires quickly and safely. The Prolnert agent is discharged at a steady flow rate, preventing destructive turbulence, and only the necessary amount of extinguishing agent is released. The system also uses environmentally friendly fire suppression agents.

- Replace your existing, and potentially harmful, fire suppression system with an environmentally friendly one
- Reduce installation costs by as much as 60% on hardware with smaller venting areas
- Can be placed in almost any non-critical area
- Directional selector valves decrease the chance of additional infrastructure damage

Best For: Companies that need to replace older fire suppression systems to support a green initiative and save money.

Fike ECARO-25 Clean Agent Suppression System



Fike's ECARO-25 system uses a gaseous clean agent to suppress fires without damaging high-end equipment, electronics, and irreplaceable items with water. It uses an agent called FE25 made by DuPont that absorbs heat energy at the molecular level so a fire can't sustain itself. The system uses Impulse Valve Technology, which efficiently and effectively puts out fire by combining the reliability and efficiency of a rupture disc with the flexibility of electric actuation.

- Puts out fires using a unique, environmentally safe fire-suppressing agent
- Protects expensive infrastructure from fire damage as well as additional water damage
- Use your existing Halon pipe network and update it with the ECARO-25 system

Best For: Enterprises that need an efficient fire protection system that prevents excessive damage to crucial IT components.

Fireaway Stat-X Thermal Units



Stat-X Thermal Units from Fireaway emit an ultra-fine potassium-based aerosol that won't harm sensitive electronic equipment or magnetic media. Thermally operated units integrate a thermal detector that automatically activates the unit in the event of a fire. Thermal units can also be manually activated. Thermally operated units have a low installation cost, are virtually maintenance-free, and have a shelf life of more than 10 years.

- Easy installation that doesn't require pressure vessels, piping, or installation manpower
- Occupies less space than other extinguishing agents
- Environmentally friendly with zero ozone depletion potential
- Favorably reviewed by EPA for SNAP listing

Best For: Electronic cabinets, data processing equipment, and printing equipment.

Polargy PolarPlex Drop Away Panels



One of the big challenges with air management products is maintaining data center fire safety without sacrificing visibility in the aisles. Polargy's PolarPlex Drop Away Panels address those challenges. The panels are the only ones on the market with a UL listing for use under sprinkler heads. With an activation temperature of 135 degrees Fahrenheit, the panels fall to the floor in the event of a fire, so the ceiling-based fire suppression system can operate free of obstructions.

- Custom made to order
- Lightweight and easy to install (a 2- x 4-foot panel weighs only 7 pounds)
- Panel insert material is a special transparent plastic, allowing light to pass through
- Each panel is 0.013 inches thick and slots into an extruded 1-inch anodized aluminum frame

Best For: Data centers that need to seal the top of a hot or cold aisle while still allowing a fire suppression system to work as needed.

Victaulic Vortex



The Victaulic Vortex fire suppression system is the world's first-ever hybrid (water and inert gas) fire extinguishing system that extinguishes fires without the use of any toxic chemicals by deploying a high-velocity, low-pressure mixture of nitrogen and water. The system delivers as little as 1 gallon of water per emitter per minute, and each emitter can protect up to 2,500 cubic feet. The system is compatible with facility fire protection systems to provide greater design flexibility, and it is recharged rapidly, allowing for a return to working conditions almost immediately after a fire.

- Nearly zero wetting of protected areas
- No ozone depleting or greenhouse gas emissions
- Quick system recharge to support minimal facility downtime
- Protects people and assets

Best For: Protection of enclosed cabinets and isolated equipment within protected spaces.

Do you have a
NEW
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Send your press release or
related product information
to press@processor.com.

HOW TO

Manage Employee Departures

Protect The Business During Employee Separation

BEFORE THE ADVENT OF IT, it was very difficult for a departing employee to exit with sensitive company information, unless they were able to carry loads of paper files without anyone noticing. Now that information is conveniently digitized and portable, it is easier than ever for departing employees to surreptitiously carry off sensitive intellectual property. Also, if careful procedures are not followed when employees depart, administrators could inadvertently allow departing employees to walk away with access to key systems—especially employees working in IT.

Involuntary terminations further complicate the danger of information theft, because an employee that is involuntarily terminated may have an axe to grind and could be looking for ways to hurt his former employer. Even employees who voluntarily depart may be tempted to either steal intellectual property or retain access to key systems for financial gain. Fortunately, there are a variety of approaches administrators can take to ensure the separation process is thorough and complete.

Have A Plan In Place

Managing employee departures is, at first blush, a common-sense task: When an employee departs, his access to all company systems, information, etc., is terminated. But as usual, the devil is in the details.

For example, many businesses don't have policies and procedures in place to consistently and effectively manage employee departures. A key component is establishing a response plan for handling terminated employees that can be executed at the same time the employee is going through the separation process, says Joe Fisher, president of Affinity IT Training (www.affinity-it.com). The plan should clearly lay out the steps required to secure assets managed by departing employees, including changing passwords for all systems and accounts the departing employee managed, such as network and data devices, operating systems, applications, etc.

Once the plan is executed and the employee has departed, it is wise to conduct a system audit and look for malicious items such as viruses, logic bombs, and back door accesses. Host-based intrusion systems can help with this task; in addition, it's also important to segregate duties so carte blanche access to critical systems is avoided, Fisher says.

Of course, he adds, the plan must be developed, contain enough detail about employees' systems access, and be able to be executed quickly by administrators.

Retrace The Trail

When approaching employee departures from an IT and security perspective, administrators should think about the processes

developed to manage employee arrivals, says Joel Schneider, president of Liberty Technology Advisors. When new employees start, the on-boarding process includes a list of items and systems the employee receives access to, such as phones, office keys, systems access (email, accounting, customer service, etc.), and electronic entry badges.

The off-boarding process should be the exact reverse of the on-boarding process, Schneider says. Access enabled by items such as tablets and smartphones should be terminated, and all company resources such as laptops, tablets, and smartphones should be returned to Human Resources or to the employee's immediate supervisor.

Trust, But Verify

In today's world, highly qualified individuals may skip from company to company with ease, so it is often difficult to surmise who is

in it for the long haul and who is looking to leave. However, it is critical that administrators understand their workforce and tailor their processes accordingly.

For example, Affinity IT Training's Fisher says, whenever employers detect any hint of dissatisfaction or restlessness in an employee, the employee should immediately be placed on a monitoring list so her actions can be reviewed by supervision. Frequent—and random—auditing can help monitor employee activities and detect anomalies, even when an employee's intentions are not known.

When an actual termination occurs, employees should be allowed to retrieve personal items while escorted by security, Fisher says. If possible, an exit interview should be conducted so the employee's physical exit can be delayed while the employee departure response plan is executed, he adds. The idea is to ensure the plan is executed and all access is terminated before

Key Points

- Employee departures, if not properly managed, can result in data/intellectual property loss and potential unauthorized access to critical systems.
- Planning policies and processes covering departure management is the best way to be consistent and protect the business.
- Coordination between access revocation and physical removal of the employee from the premises is critical to ensure a smooth transition.

the employee walks out the door. The plan must be thorough enough to ensure no stone is left unturned.

Don't Forget About The Phones

Employers managing workforce departures must consider the ins and outs of mobile phone usage. This is an area that can be easily overlooked and cost an employer a lot of money in undetected and ongoing charges.

According to Bzur Haun, CEO of Visage Mobile (www.visagemobile.com), most employers don't consider the costs behind plans and features that remain active; in some cases, employers may even continue to pay for mobile phone access costs for departed employees. These situations can cost a company much more than the fees paid to support an active employee using a mobile account.

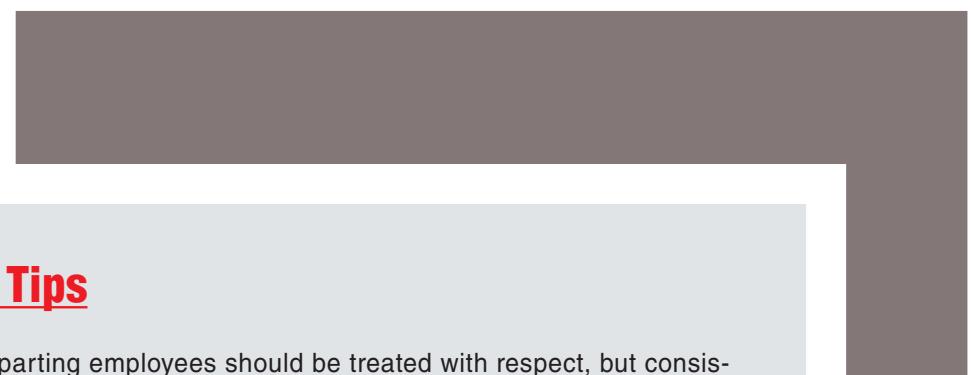
Other Considerations

As soon as it becomes known that an employee is departing, the IT staff should be informed so that access to key systems can be shut down, says Alan Wlasuk, CEO of 403 Web Security (403.wddinc.com). At that time, a review of all company systems the employee has access to should be conducted so that a checklist can be developed for use during the employee's final day.

On that final day, administrators must collect all company IT hardware, cancel employee access to all company systems, and change the passwords used by the employee for access. Beyond changing passwords on all email accounts used by the employee, Wlasuk also recommends briefly redirecting the employee's email to a manager so suspicious behavior can be detected promptly. Even passwords to seemingly benign Internet applications accessed by the employee, such as the company Web site, should be changed.

Any computers used by the departing employee could be potential sources of malware, such as keyloggers. These computers should be checked so the possibility of maliciously transferring information from the computer(s) to an external party can be eliminated, Wlasuk adds.

Jon-Louis Heimerl, director of strategic security for Solutionary (www.solutionary.com), says monitoring system use for aberrant behavior is more important than normal during layoffs. If a termination turns hostile, access to most systems should be disabled before the employee is told if at all possible. Full account revocation is the single best thing to do, he concludes. P



Top Tips

- Departing employees should be treated with respect, but consistency with policies and processes that protect the business must be maintained, says Alan Wlasuk, CEO of 403 Web Security (403.wddinc.com).
- A business should be operated on a "need to access" policy, not on freedom of information. Wlasuk says most companies do a very poor job in this area.
- Jon-Louis Heimerl, director of strategic security for Solutionary (www.solutionary.com), says businesses should create a contract between employee and employer specifying that misuse of corporate information could result in civil penalties against the former employee if that contract is violated.



BUYING TIPS:

Unified Threat Management



UNIFIED THREAT MANAGEMENT incorporates a raft of network security technologies previously sold separately, such as intrusion prevention, spam filtering, and VPN. Not only does well-coded UTM keep disparate components from conflicting with each other, it gives them access to each other's expertise for better protection.

Here's a look at major features to keep in mind if your enterprise is planning to upgrade its UTM appliance.

Perimeter defense. If you think of a UTM as a castle, its firewall component is its moat. Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com), recommends that a UTM appliance have at least SPI (stateful packet inspection) capability. Better yet, he says, is a hybrid firewall with SPI, proxy, and packet filtering features.

Additionally, the UTM must come with intrusion detection and prevention systems. The IDS/IPS should be inline with the firewall and fully integrated with it to better stop threats at the edge.

Anti-everything. "Hackers use all kinds of ways to get in," Stella says. "You need to have protection against all of them." This means active safeguards against spam, phishing, Trojans, worms, and so on.

First, Stella says, a good UTM employs multiple antivirus engines with robust, real-time protection against zero-day attacks. The antivirus should cover multiple protocols. An additional ability to scan encrypted protocols, uncommon today, will become more important this year, he adds.

Also, Stella says, look for products from vendors that don't "dumb down" their low-end models intended for branch and remote offices. Although entry-level UTMs may provide proportionally more modest throughput and concurrent connection figures, he says, "it is very important that the technology offered for the small offices be exactly the same as that offered for the main office."

User-related protection. A UTM must provide policy enforcement, detection of attachments with potentially dangerous payloads, and server protection that leverages the firewall and IDS/IPS.

A Web access policy is also key, Stella says, as is secure VPN access with both IPsec and SSL support for site-to-site and roaming scenarios.

Continuous vendor support. After dedicating a skilled, onsite technician or two to professionally configure your new managed UTM to protect your network, the vendor must also monitor and manage the appliance all day, every day. This includes

proactive updating instead of waiting for the devices to "check in" every so often.

"The Internet moves too fast for updates to be pulled from the devices. Push updates are now a must . . . to reduce exposure to zero-day threats."

True integration. A UTM should be a team effort, Stella says. All of its formerly disparate features must be integrated with each other. As examples, Stella says that just as the firewall and IPS should work closely together, the antispam should work with the IPS to temporarily blacklist source IP addresses and avoid spam floods. In a like manner, the Web

access policy should consult with the antispam component to block emails containing URLs that are either harmful or just simply against company policy.

"In a true UTM device, all the functions work together as a whole, such that the final result is stronger than the sum of the parts."

Future tech. UTMs will likely add more new technologies that have traditionally been sold separately, Stella says, citing data loss prevention and vulnerability scanning as two examples. "More and more companies are demanding to see them integrated with the gateway protection," he says. □

BUYERS' CHECKLIST

- ✓ **Effectiveness.** How well does the appliance block malware and network threats, known and unknown?
- ✓ **Performance.** Is the system fast enough to have minimal impact on network throughput?
- ✓ **Price.** Beyond the purchase price and cost of initial, professional configuration, what's the ongoing subscription cost of remote management?
- ✓ **Reliability.** If the UTM comes in an appliance, does it have high availability features?

KEY TERMS

Appliance.

A standalone server for running a particular application, such as UTM.

Managed.

An appliance that a vendor remotely monitors, updates, and changes.

UTM (unified threat management).

Software (often installed on a managed appliance) that seeks to comprehensively block malware and network threats through features such as a firewall, antivirus, antispam, intrusion prevention, VPN, access policy enforcement, and more.

PRODUCT SPOTLIGHT

Security

Product

Crossbeam Systems X-Series



Description

The X-Series Network Security Platform family from Crossbeam brings together a quartet of security appliances for a range of needs. The X20, X30, X60, and X80-S are based upon a blade-style, modular architecture—what Crossbeam calls an open, adaptable platform—for expandability. Each encloses at least one APM (application processor module), an NPM (network processor module), and a CPM (control processor module), along with Crossbeam's latest XOS operating system.

- Models support throughput of 5Gbps in the X20 to 150Gbps in the X80-S
- APM blades are available with up to 12 cores
- The updated XOS operating system version 9.5 supports more security applications

Best For: Service providers, telcos, and large enterprises.

Fortinet FortiGate-300C



FortiGate Unified Threat Management (UTM) systems from Fortinet® give you the ability to improve your security posture and accelerate your network performance while simplifying your network infrastructure. The FortiGate-300C appliance delivers industry-leading performance and flexibility with hardware-accelerated essential security technologies, including firewall, VPN, intrusion prevention, application control, and Web content filtering, all managed from a 'single pane of glass' console. They also include other security technologies such as antivirus/anti-malware, antispam, vulnerability management, and WAN optimization.

- Provides up to 8Gbps firewall throughput with 10 GbE interfaces
- A "single pane of glass" management console makes it easy for you to deploy and manage
- IPv6-ready platform with strong authentication options

Best For: Midsize enterprise organizations and branch offices of large organizations looking for comprehensive network security protection.

Price: \$4,995

Contact: (866) 868-3678 | www.fortinet.com

Fortinet FortiGate-40C



The FortiGate-40C appliance combines the purpose-built FortiOS 4.0 operating system with the Fortinet System on a Chip (SoC) purpose-built processor to deliver unmatched security and performance advantages. These devices feature all of Fortinet's unified threat management (UTM) inspection capabilities; firewall, IPS, application control, VPN, and Web filtering—all managed from a 'single pane of glass' console. They also include other security technologies such as data leakage prevention, vulnerability management, and WAN optimization. You can deploy security technologies as needed for your unique requirements.

- 200 Mbps performance delivers fast throughput for high-bandwidth deployments
- Unlimited user licensing minimizes operating costs and ensures that changes in the number of users does not interfere with network availability

Best For: Small businesses, small branch offices, and retail outlets that require all the security functions of larger FortiGate devices in a small form factor.

Price: \$398

Contact: (866) 868-3678 | www.fortinet.com

Product

Network Box E-1000x, E-2000x & E-4000x



Description

Network Box offers a range of UTM devices, including the E-Series aimed at enterprises. Network Box's E-1000x, which is the entry-level member of the E-Series, utilizes an Intel Xeon dual-core processor to power its impressive security technologies. The E-2000x, the mid-level member of the series, features a quad-core Intel Xeon 64 bit processor. At the top level is the E-4000x with two Intel Xeon quad-core processors. As with all Network Box systems, the E-Series can be installed in high availability, load balanced, or cluster configurations.

- E-Series models are the current flagship of the Network Box range of security appliances, specifically designed for the enterprise marketplace
- The flexibility of the E-Series enables enterprises to handle demanding workloads, including mission-critical requirements

Best For: Large enterprises with demanding workloads.

Contact: (832) 242-5757 | www.networkboxusa.com

Network Box M-255, M-285 & M-385



Network Box offers a range of UTM devices, with three aimed at medium-sized enterprises. New from Network Box is the M-385, which makes use of a 3GHz dual-core Intel Core 2 Duo processor to power its impressive security technologies. The M-285 (pictured) features a 2GHz Intel Pentium M processor. There's stateful packet inspection and packet filtering in the firewall, IDS and IDP, anti-malware, antispam/phishing, content filtering, IPsec and SSL VPN, and more.

- Supports up to 150 users
- The M-385 has seven Gigabit Ethernet ports (expandable to 11 and with fiber support); the M-285 has four Gigabit Ethernet ports and a 100Mbps port

Best For: Medium-sized enterprises.

Contact: (832) 242-5757 | www.networkboxusa.com

Network Box S-25, S-35 & S-85



Network Box designed its S-Series UTM devices for smaller offices that need a VPN to connect remote workers to a central location. The S-25 uses an Intel Celeron 1GHz processor with 64KB cache to connect the employees of any small office. The S-35 features an Intel Celeron processor with an additional solid-state drive for logging and caching. The powerful S-85 features the Intel Celeron processor with an added SSD, but also aims to aid small offices requiring UTM+ services, including content filtering and malware protection.

- Designed to help IT staff look after hundreds of branch offices to maintain hardware reliability and powerful offsite management
- With no moving parts in its all-SSD technology, the S-Series delivers fast and powerful performance

Best For: Smaller offices connecting remote workers to a central location.

Contact: (832) 242-5757 | www.networkboxusa.com

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Juniper SRX Series Services Gateways For The Branch

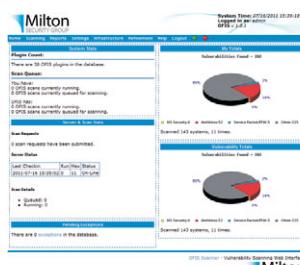


Juniper says its SRX Series Services Gateways For The Branch UTMs are the only solutions that consolidate switching, routing, and security services in a single device to connect, secure, and manage any network. With five models for branch offices (and another five for the data center), the SRX series aims to deliver proven security services combined with superior availability and performance, while reducing total cost of ownership.

- Firewall, VPN, IPS, antivirus, antispam, Web filtering, and content filtering
- Wizards for quick and easy deployment
- AppSecure application-level monitoring and firewall
- Integrated and centralized reporting, configuration, policy management
- Integrated WAN/routing/QoS with Ethernet, 3G, LTE, T1/E1, xDSL, serial, and DOCSIS-3 options

Best For: Branch offices and small to medium-sized businesses.

Milton Security Group EdgeOFIS



Milton Security Group LLC's EdgeOFIS endpoint vulnerability scanner lets you identify and prioritize known and zero-day vulnerabilities to protect your organization's valuable assets.

- Leverages the large and ever growing library of scan sets used by Milton Security Group's Edge7200 series
- Fast discovery and scanning of all assets on the network
- Non-intrusive scanning engine to optimize network performance and scan network devices, operating systems, applications, and databases
- Prioritization of vulnerabilities to expedite mitigation
- Customizable Systems and Schedules

Best For: Administrators looking for a simple way to see the current status of your end nodes, then proactively patch and remediate systems.

Price: \$399 (VM); \$999 (hardware). Includes one year of support, monthly security scan sets, and five-server license.

Contact: (888) 674-9001 | www.miltonsecurity.com

Milton Security Group Edge Series



Milton Security's Edge Series, including the Edge7200i, EdgeSMB, and EdgeUtility, integrates seamlessly with existing switching and wireless infrastructure and authentication services. Deployed in-line at vital network points, the appliance powers solutions for secure wireless, guest wireless, subscriber management, endpoint visibility, and virus control.

- Guest Wireless solution lets companies offer wireless Internet access but attaches granular, identity-based access control
- Subscriber Management provides a Wi-Fi solution with authentication, authorization, accounting, guest-only Internet access, and critical resource protection features
- Endpoint Visibility provides live and customized reports concerning devices' MAC and IP addresses, user credentials, VLAN tags, and session details
- Endpoint Scanning and Virus Control features

Best For: Administrators in need of real-time control and visibility over wired, wireless, and VPN infrastructures.

Price: Starts at \$999

Contact: (888) 674-9001 | www.miltonsecurity.com

SonicWALL NSA 2400



SonicWALL says that its NSA 2400 gives small to mid-sized businesses comprehensive internal and external protection with easy, flexible setup. It boasts six Gigabit Ethernet ports plus dual USB connections for potential 3G wireless modem configuration access. The NSA 2400 is a next-generation firewall platform, the company says, bringing dual-core performance to the table along with advanced protection technologies.

- Application Intelligence and Control addresses leakage of sensitive data
- Granular control over basic policies and rules
- Reassembly-Free Deep Packet Inspection uncovers hidden threats
- Gateway antivirus, antispyware, and intrusion prevention

Best For: Branch offices and small to medium-sized businesses.

SonicWALL NSA 4500



SonicWALL bills its NSA 4500 as a next-generation firewall platform for central-site and large distributed environments needing high capacity and performance. The NSA 4500 includes dual-core processing, IPS, SSL VPN, high-availability technology, advanced networking, and proprietary features in an effort to provide real-time protection without sacrificing speed. SonicWALL says that the NSA 4500 supports a large but flexible deployment with 1,500 site-to-site VPN tunnels, 500 global VPN clients (3,000 maximum), two SSL VPN NetExtender clients (30 maximum), and two Virtual Assist Technicians (10 maximum).

- Reassembly-Free Deep Packet Inspection firewall
- SonicWALL Clean VPN secures tunnel access and traffic
- Application Intelligence and Control prevents data leakage

Best For: Midsized businesses; central-site and large distributed environments.

Trustwave Unified Threat Management



Trustwave says that its Unified Threat Management delivers a combination of critical security technologies in a single, cost-effective package. With two tiered models to fit a variety of perimeter security needs, Trustwave UTM is available as an appliance or as a fully managed service. Fully configured with antivirus, VPN, intrusion prevention, and a firewall, the appliances can furnish a total throughput of between 4Mbps (TS-10) and 124Mbps (TS-100).

- Stateful firewall
- Inline IPS
- Web and email gateway antivirus
- Web content filtering
- Site-to-site and remote user VPN
- Remote application access control

Best For: Small, medium-sized, and distributed enterprises.

Key Points

- Pervasive memory scraping takes advantage of data left in volatile memory during the processing of data for encrypted sessions.
- Originally targeted toward the retail and hospitality sectors, the threat has been popping up in a growing number of data breaches in other industries where data can be used for nefarious purposes.
- There are a number of simple security practices that can deter pervasive memory scraping.

Pervasive Memory Scraping

A Growing Threat That Bypasses Encryption

IN ITS ANNUAL DATA BREACH INVESTIGATIONS REPORT FOR 2009, the Verizon RISK Team identified a new attack—RAM Scraper—which was created to thwart encryption and pilfer data from volatile memory. Revisited at the 2011 RSA Conference in a presentation by SANS (www.sans.org) researchers and instructors Johannes Ullrich and Ed Skoudis, pervasive memory scraping has been identified in a growing number of data breach incidents.

"Many organizations have spent much of the past 10 years deploying encryption technologies, such as VPNs, SSL, and even disk encryption," says Skoudis, who is also a senior security consultant for InGuardians. "But, if a host is compromised, and the data is being processed on that machine, it is often temporarily located unencrypted in memory. So, while it might be encrypted for most of its life (while it goes across the network and while it is stored on disk), some data is often present in clear text in memory while it is being processed."

MEMORY LAPSE

Considered the latest weapon in the hacker's arsenal, pervasive memory scraping is designed to capture personally identifiable information, or PII, from encrypted sessions. "It combs through the memory of a system, looking for secrets such as passwords, crypto

keys, or even PII stored there," Skoudis says. "It grabs the data and stores it somewhere, ready to be exfiltrated to a bad guy."

Though some information about this type of malicious attack reports that only machines that have had executive privileges compromised are at risk, Skoudis says that isn't necessarily the case.

AVOIDING MEMORY LOSS

While many organizations claim to have deployed end-to-end encryption, Skoudis says that many companies aren't as secure as they think they are. "They've encrypted a lot of the data's journey, but there are some crucial holes in their protection, and it's in memory of the machines where the data is being processed," Skoudis says. "This really isn't a surprise, because if an attacker completely controls a machine where the data is being processed, he can

grab that data from memory. We've known about this kind of thing for decades, but now, the tools to implement it are becoming much more widely used."

To prevent pervasive memory scraping attacks, there are a number of simple steps IT professionals can do to shore up their defenses.

Skoudis suggests to not decrypt data unless there is a business need for it. For very

sensitive data, developers may want to consider using hardware-based encryption capabilities, which safely store secrets (typically keys) outside of normal memory so that they can't be pilfered. Additionally, Roger Thompson, vice president of Web threat research at AVG Technologies (www.avg.com), stresses not letting any foreign code execute on systems.

Secure Web browsers with a memory sandbox feature will also prevent data loss from memory, but these may be difficult to use with other applications.

Because pervasive memory scraping attacks result in the stolen information being securely transmitted, administrators may want to flag any encrypted data leaving a system or network that's not permitted or expected to be transmitting such data. □

Is It Time To Worry?

SANS (www.sans.org) aims to help organizations get ahead of the bad guys by alerting administrators to potential threats, and it billed pervasive memory scraping as the "most dangerous attack technique likely to be used in 2011."

However, not all security researchers are rushing to raise the red flag. Roger Thompson, vice president of Web threat research at AVG Technologies (www.avg.com), does not see the threat of pervasive memory scraping having much impact at this point. "I don't think it's something that people should be overly concerned about at the moment," he says. "It is certainly possible that there could be critical data left in memory after a program executed, but can you say 'needle in a haystack'?"

Thompson adds, however, that highly specialized attacks and specific targets are becoming more common. "The buzzword is 'advanced persistent threat' and it's happening more and more. Certainly you can't pay attention to it, but at this point, I don't think I'd lose any sleep over it."

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- Dual Gigabit Network Cards
- Windows Storage Server 2008 R2 or Linux OS

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HOW TO

Build A Better IT & Facilities Relationship

Open The Lines Of Communication To Encourage Better Collaboration

THE RELATIONSHIP BETWEEN IT and facilities should be among an enterprise's strongest and most collaborative. Traditionally, however, it's been among the most underdeveloped because the groups often answer to separate managers and lack an understanding of one another's responsibilities, budgetary constraints, and long-term goals. Still, as increasingly more enterprises work to revamp IT infrastructures, the IT/facilities bond will only become more vital.

"Today, enterprises are no longer willing to throw money at the data center to keep it running," says Marina Thiry, director of product marketing at Modius (www.modius.com). Enterprises are recognizing that as costs of power and resources increase, they need to better manage those data center resources by making incremental changes for higher efficiency. Companies successfully doing this are using advanced optimization tactics that deliver a higher yield, she says. "These are the companies where IT and facilities are communicating, collaborating, and effectively managing their data center resources as an ecosystem vs. isolated islands of equipment," she says.

The Past & Present

Historically, Thiry says, enterprises have built and managed data centers the same as their other facilities. "Irrespective of IT demand, utilization of power and cooling were relatively fixed, and in anticipation of growth, most data centers simply over-provisioned. It was a safe approach, but wasteful," she says. One product of this waste is energy bills becoming the data center's second-highest operating cost next to staffing, she says.

IBM serves as an example of how a strong IT/facilities relationship can affect such a scenario. "IBM's data centers occupied 5% of their enterprise floor space yet represented 50% of their power bill. It was simply unsustainable," Thiry says. Working together, IBM's IT and facilities groups helped to create a Green Data Center initiative that saw IBM double capacity without increasing power. "They accomplished their goal through collaboration and smarter technology. Ultimately, IBM consolidated 200-plus data centers into 12 and saved millions in the process," she says.

Another benefit of a good IT/facilities relationship relates to a data center's overall OPEX, says Harold Simmons, director of strategy at United Metal Products (www.unitedmetal.com). For example, if facilities plans to build a 10MW data center with various tier topologies within the data center, it's important that facilities coordinates with

IT to make sure the most important processing levels are done in the Tier 4 section vs. the Tier 1 portion, he says. If not, facilities might only devote, say, 3MW to the Tier 4 infrastructure when it actually needs 5MW capacity. "This would lead to an additional cost, in that the additional 2MW that needs a Tier 4 topology would have to be located either offsite in a colo or the facility would have to be built out to support an additional 2MW of Tier 4 space," Simmons says.

Jim Hall, marketing manager for Staco Energy Products (www.stacoenergy.com), says IT failure can cripple an organization "more than any other single event." Further, with so many business processes dependent

on IT, the IT infrastructure component has become mission-critical. "Both IT and facility management share common needs, which should be reinforced by the development of both short- and long-range business planning as a requirement, where executive management provides the framework and environment that requires effective integration of their dependent goals and objectives," he says.

What To Shoot For

Hall describes the IT/facilities relationship as neighbors sharing the same fence. On one side, internal forces such as high density, virtualization, intelligent infrastructure, and capacity utilization pressure IT to deliver

service levels, compliance, energy costs, and cost control. Facilities, meanwhile, is focused on building infrastructure, essential services, production equipment, and maintenance. "The handshake by both [groups] over the top of the fence requires a better understanding by facilities of the special needs of IT, and IT needs to respect the facilities' skill sets that ultimately can provide an optimized result," Hall says.

"Unfortunately, both IT and facilities are prone to traditional thoughts and behavior," Hall says. To overcome this, the groups need to work to truly understand that IT's needs are divergent from the business' normal operational needs, something that will enable IT architects and operations planners to jointly reach far more optimized results.

Having strong project leadership in place is important to aligning competing facilities requirements between IT and facilities departments, bridging communication gaps, and gaining consensus across all stakeholders, Thiry says. Additionally, correlating data center assets with the enterprise's long-term success can help in acquiring executive endorsement and funding, while reaching a shared understanding of the data center's power allocation can produce more effective energy management strategies, she says.

Thiry advises IT and facilities to "arrive at an accurate baseline" in order to engage in meaningful conversation about realistic targets and initiatives. Further, implementing real-time monitoring and data-driven analysis tools can provide visibility that's fundamental to managing resources and decision support, she says. Thiry also advises IT and facilities have a clear picture of a shared data center optimization roadmap. "The value of an optimization roadmap immediately resonates with anyone who has worked on a long-term IT project, like managing a data center," she says.

Possible Snags

One pitfall IT and facilities could face is overcoming each group's respective educational backgrounds and means of interacting. Here, Hall cautions to "focus on common needs, not to try to compete for position." Poor relationships and communication barriers will only stand in the way of effectively working together. In short, he says, it's possible to meet on common ground without compromising their core focuses. "The payback result to the enterprise, as well as those who take this leap of faith, is a game changer," he says. □

Action Plan

- Recognize that IT and facilities' shared goal is to better the enterprise's bottom line.
- Agree that IT has special needs that are unique to other facilities.
- Be aware of each group's divergent background and means of interacting.
- Enlist strong central leadership to help bridge, align, and oversee collective resources, responsibilities, and goals.
- Collectively understand data center power and cooling requirements to discuss realistic targets and potential initiatives.
- Create a shared data center optimization roadmap.
- Maintain ongoing communication.

Get Started

IT often operates on tight budgets and lacks executive support, says Jim Hall, marketing manager at Staco Energy Products (www.stacoenergy.com). To that end, facilities managers should be advocates for IT, making sure enterprise management knows what's needed to support IT. Further, he says, "don't begin with the expectation that IT will know what it will take to protect their systems. IT administrators often are narrowly focused on technology and need the support of facilities to recognize potential problems and needs upfront."

Enterprises can use various process-driven methodologies to help foster a better IT/facilities relationship, including ITIL (Information Technology Infrastructure Library) V3, a group of best practices for IT service management that Hall says provides a roadmap for steps and processes required. He emphasizes, however, that "nothing should be a substitute or excuse not to engage in formal business planning, both short and long term. The time spent here will most certainly pay dividends."

Top Tip

- ✓ In addition to the IT director and facilities director understanding where the other side of coming from, the most basic step is to "align the organization so that IT and facilities are two sides of the same coin," says Harold Simmons, director of strategy at United Metal Products (www.unitedmetal.com). This begins, he says, with "having the directors of IT and facilities directly reporting to the same person," which could be the CTO or other C-level executive.

Key Points

- The relationship between IT and facilities is vital to the enterprise's bottom line.
- Strong IT/facilities leadership can promote effective communication and develop realistic common goals.
- Enterprises can realize significant potential energy savings via a solid IT/facilities bond.



BUYING TIPS:

Portable Cooling



FOR DATA CENTER PROFESSIONALS, cooling is as vital a concern as storage capacity and security: Data centers run more efficiently and reliably with the proper temperature. And uptime is everything. Portable cooling options can often make all the difference in a temperature-strained environment because of their set-and-forget programmability, built-in automation, and modular and mobile form factors. With that in mind, there are several tips and key industry trends you need to be aware of before you purchase portable cooling equipment.

Consider your current hardware and capacity needs. To make the appropriate portable cooling purchases, decision makers need to consider their current hardware and capacity needs and provide enough scalability to grow with the organization's future data needs. Gina Dickson, product manager at Black Box Network Services (www.blackbox.com), says the primary concern for any organization is how many BTUs it needs to keep equipment at the appropriate temperature. If you go significantly over capacity, then efficiency suffers; too little capacity, and the cooling equipment won't be able to keep up.

Echoing Dickson's advice, Clark Michel, vice president of Atlas Sales & Rentals (www.atlassales.com), stresses the importance of capacity planning. "The portable should be sized to deliver adequate cooling capacity in a worst-case scenario, such as an extended heat wave or failure of the central system. In fact, it is not a bad idea to oversize portable equipment slightly to allow for these circumstances."

Open or closed loop? Another major consideration with cooling equipment is whether to select an open- or closed-loop system. Open-loop cooling systems utilize a liquid coolant such as water that is exposed to air and the environment. They tend to have a lower initial cost but also require more frequent maintenance and water treatment, and they suffer from reduced efficiency compared to closed-loop systems. A cooling system that utilizes an air- and environment-isolated liquid coolant is commonly referred to as a closed-loop system. Closed-loop systems tend to have a higher initial cost but require less maintenance and provide better cooling efficiency compared to open-loop systems.

Know where the equipment will be used. Consider where the cooling

equipment will be operated. If it's a dedicated data center manned only occasionally for upgrades and maintenance purposes, then equipment noise is not a major concern. If the cooling equipment will be in an open office or near employees on a regular basis, then low noise output should be high on the list of priorities.

Look for dependable units. Atlas Sales & Rentals' Michel says dependability should be top-of-mind. "Always look for a high-quality, commercial-grade unit designed to deliver continuous, 24/7 cooling. The low-cost portables available

from home improvement retailers may be adequate for residential use, but they do not have the cooling capacity or durability needed for round-the-clock protection of critical electronics."

Power and restart features. Michel also offers advice on a few must-have features. "Make sure the unit you choose has an automatic restart feature. That way, you can be certain it will start up again automatically in the event of a power blip." He goes on to warn that a backup generator may become necessary, and making sure the portable cooler can run on the backup circuitry is vital. □

BUYERS' CHECKLIST

- ✓ How many BTUs do you need to keep your equipment at the appropriate temperature?
- ✓ Do you need a closed- or open-loop system?
- ✓ Where will the cooling equipment be located?
- ✓ How much of a concern is noise output?
- ✓ Commercial-grade equipment offers superior reliability and durability.

KEY TERMS

BTU (British Thermal Units).

Used to measure the amount of energy required to heat a liquid such as water. A single BTU represents enough energy to raise the temperature of one pound of water by one degree Fahrenheit at a constant pressure of one atmosphere. In the context of cooling equipment, BTUs are listed as a given rating per hour.

Closed loop.

A cooling system that utilizes a liquid coolant that is isolated from air and the environment.

Open loop.

A cooling system that utilizes a liquid coolant that is exposed to air and the environment.

PRODUCT SPOTLIGHT

Portable Cooling

Product

Black Box 24U ClimateCab NEMA 12 Server Cabinet



Description

Climate-controlled protection found in Black Box's 24U ClimateCab Server Cabinet lets you install servers without the need for additional cooling or costly infrastructure. These enclosures are NEMA 12 rated, meaning they are ideal for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.

- Save energy by cooling just the cabinet
- Includes a 6,000 BTU air-conditioning unit
- NEMA 12 rated for protection
- Only 51 x 28 x 31.5 inches, so it can fit where space is limited

Best For: Housing network equipment outside the protection of a climate-controlled data center.

Price: \$4,249.95

Contact: (877) 877-2269 | www.blackbox.com

Black Box 42U ClimateCab NEMA 12 Server Cabinet



The Black Box 42U ClimateCab NEMA 12 Server Cabinet can accommodate larger systems that reside in areas without adequate climate controls, letting users avoid making costly infrastructure changes. These enclosures are NEMA 12 rated for use in indoor locations with falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids.

- Save energy by cooling just the cabinet, not the entire room
- Includes an 8,500 BTU air-conditioning unit
- NEMA 12 rated for protection
- 40-inch depth accommodates most servers

Best For: Server installations outside the protection of a climate-controlled data center.

Price: \$5,499.90

Contact: (877) 877-2269 | www.blackbox.com

Black Box ClimateCab NEMA 12 Wallmount Cabinet



Secure wallmount ClimateCab cabinets from Black Box provide a compact way to protect and cool sensitive components. Users can install the NEMA 12 rated wallmount cabinets in indoor environments where falling dirt; circulating dust, lint, and debris; and dripping or splashing liquids would otherwise cause problems for equipment.

- Compact wallmount design saves space
- Operates on a standard 115V power source
- Single- or double-hinged
- Choose from a cabinet with a fan or an 800 BTU air-conditioning unit

Best For: Remote sites that have limited space and conditions that are potentially damaging to delicate electronics.

Price: \$2,695.95 for single-hinged and \$2,795.95 for double-hinged

Contact: (877) 877-2269 | www.blackbox.com

Product

MovinCool Office Pro W20



Description

The latest addition to MovinCool's portable air conditioners, the Office Pro W20 has an impressive 15,700 BTU/hr cooling capacity. Because the unit is watercooled, customers need not worry about locating the Office Pro W20 in areas without local hot air exhaust: The unit simply requires a water supply and a standard 115V outlet.

- Programmable digital controller enables weekend and after-hours cooling
- UL listed for safe operation
- Accepts a wide water supply temperature range (40 to 90 F) and a minimum water pressure of only 12 pounds per square inch
- Connects to a fire alarm system to allow emergency shutdown

Best For: Office spaces and IT equipment rooms where hot air exhaust is not available.

Price: \$4,375

Contact: (800) 264-9573
www.movincool.com/dealer.php

MovinCool Office Pro 12 sold by Rackmount Solutions



The MovinCool Office Pro 12 is a portable spot-cooling air conditioner designed to lower operating temperatures of computers and networking, communications, and office equipment to maximize reliability and hardware life span. The Office Pro 12 is self-contained, portable, and features an electronic thermostat and a programmable control panel for tailored cooling when and where you need it most.

- Provides 12,000 BTU/hr of cool air maximum spot cooling
- Programmable digital controller
- Operates on a standard 115V power source
- No costly installation necessary
- Maintains ideal operating temperature for heat-sensitive electronics, down to 65 degrees Fahrenheit

Best For: Offices filled with heat-generating electronics.

Price: \$3,295

Contact: (866) 207-6631 | www.rackmoutsolutions.net

MovinCool Office Pro 18 sold by Rackmount Solutions



The MovinCool Office Pro 18 offers superior cooling capacity without requiring a nonstandard power source. This portable air conditioner protects sensitive data and electronic systems from loss and failure, acting as an insurance policy for your infrastructure. The Office Pro 18 features an intuitive control panel that lets users designate when the unit operates.

- Provides 16,800 BTU/hr of cool air maximum spot cooling
- Operates on a standard 115V power source
- Programmable controls enable weekend and after-hours cooling
- No costly installation necessary
- UL Listed for safe operation

Best For: Heat-sensitive office and data systems.

Price: \$3,655

Contact: (866) 207-6631 | www.rackmoutsolutions.net

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

MovinCool CM12 & CM25



The MovinCool CM12 and CM25 are ceiling-mounted air conditioners that are just 15.5 inches (CM12) and 20 inches (CM25) tall, making them compact enough to fit above a drop ceiling for spot cooling space-limited installations and server rooms. The units free up valuable floor space and feature built-in flanges and mounting brackets. The CM25 features a wall-mounted electronic controller that lets users monitor and troubleshoot problems.

- The CM12 provides 10,500 BTU/hr of cool air at 80 degrees Fahrenheit at 50% RH and operates on a standard 115V power source
- The CM25 provides 25,000 BTU/hr of cool air at 80 F at 50% RH and operates on a 208/230V power source
- Can fit into tight ceiling spaces, freeing up floor space

Best For: Space-limited equipment rooms and cramped server and telecom closets.

Price: \$2,895 (CM12), \$6,995 (CM25)

Contact: (800) 264-9573
www.movincool.com/dealer.php

MovinCool CMW30



The MovinCool CMW30 water-cooled model is ideal for applications where an air-cooled unit cannot be used because there is no available space for hot exhaust air. The CMW30 comes standard with wall-mount controller that offers advanced communications, monitoring, self-diagnostic, and troubleshooting capabilities. It can fit into virtually any drop-ceiling space and doesn't require refrigerant connections or outside condensing units.

- 29,400 BTU/hr total cooling capacity
- High sensible cooling—ideal for server rooms
- Environmentally friendly design—7 IEER, R-410A refrigerant, and RoHS compliant
- Maximum sound level of only 55 dB(A)—5 decibels lower than a normal conversation

Best For: Server rooms and other applications with dense heat loads.

Price: \$7,495

Contact: (800) 264-9573
www.movincool.com/dealer.php

MovinCool Office Pro 24



Computers, networks, communications and office equipment will shut down when the temperature rises, crippling daily operations. By bringing spot air conditioning to just the area or room that needs it, the Office Pro 24 saves money while protecting your company's investment in equipment and customers. Self-contained and portable, the Office Pro 24 requires no costly installation—simply roll it in, plug it in and turn it on.

- 24,000 BTU/hr of maximum spot cooling to just the room that needs it
- Programmable digital controller operates automatically weekends or after hours
- Operates on 220V power
- Provides cooling down to 65 F

Best For: Offices with heat-generating electronics.

Price: \$4,885

Contact: (800) 264-9573
www.movincool.com/dealer.php

MovinCool Office Pro 36 sold by Rackmount Solutions



The MovinCool Office Pro 36 delivers 36,000 BTU/hr of spot cooling for sensitive equipment. The portable, self-contained air conditioner requires no costly installation and features an intuitive control panel that lets users program the unit to operate after hours or on the weekend.

- Provides 36,000 ETL-verified BTU/hr of cool air maximum spot cooling
- Operates on a 208/230V power source
- Features an AFCI plug for added safety against electrical arcing
- Supports plug-and-play condensate pump
- Easy-to-use programmable controls
- Self-contained, portable, and easy to set up and operate

Best For: Servers, routers, telecommunications, and other heat-sensitive equipment.

Price: \$6,980

Contact: (866) 207-6631 | www.rackmoundsolutions.net

MovinCool Office Pro 60 sold by Rackmount Solutions



The MovinCool Office Pro 60 delivers up to 60,000 BTU/hr of cooling capacity. This portable air conditioner is designed to manage temperatures for computer networks, communications equipment, and office electronics. The self-contained Office Pro 60 is easy to install—just position the wheeled unit, plug it in, and turn it on.

- Programmable digital controller enables weekend and after-hours cooling
- Operates on a 220V power source
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$9,995

Contact: (866) 207-6631 | www.rackmoundsolutions.net

MovinCool Office Pro 63 sold by Rackmount Solutions



Like its sibling the Office Pro 60, the MovinCool Office Pro 63 delivers up to 60,000 BTU/hr of cooling capacity and is ideally suited for the demands of large office spaces and heat-sensitive electronics installations. This portable air conditioner is self-contained and operates on 460V power for as little as 15 cents per hour.

- Programmable digital controller enables weekend and after-hours cooling
- Provides cooling in the low 60s to maximize the life span of heat-sensitive electronics
- Condensation pump included for uninterrupted operation
- UL Listed for safe operation

Best For: Large office spaces and computer rooms filled with heat-sensitive electronics.

Price: \$12,495

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CASE STUDY

A Storage Success Story

Aberdeen Helps The U.S. Army With Its Stirling Storage Solutions

STORAGE IS AN IMPORTANT FACET of any data center, but when the data center belongs to the U.S. Army, finding a secure, reliable storage solution is even more vital. With the U.S. Army in need of a large, fast storage solution for hosting user data and providing disk-based backups, Jeff Dupere, network administrator of the AATD (Aviation Applied Technology Directorate), turned to Aberdeen. "We also needed a complete turnkey solution to begin leveraging a virtualized environment," Dupere says. "This included a storage-area network, hosts for running the virtual machines, and the Fibre Channel connectivity to tie the two

together. Also, the entire solution needed to be VMware-certified."

Aberdeen's sales rep provided Dupere with the expertise of one of Aberdeen's engineers, who helped to determine the best solution for the U.S. Army's environment and needs. The solution included four Stirling 266 servers (2U SuperServers that support Intel's Nehalem processors), an XDAS D-Series SAN (a 4U, 24-bay Fibre 8G/SAS 6G DAS), and a Stirling X888 (an 8U storage server). The equipment offered all of the required features necessary for the job, such as full redundancy, high amounts of storage, and fast I/O.

Aberdeen's solution was evaluated against several well-known competitors. "In the end, the solution Aberdeen offered was well-supported, exceeded our performance requirements, and was significantly less expensive than the other offerings," Dupere says. "They are also one of the few companies I've seen to offer a full five-year warranty on virtually all of their equipment at no additional cost. Given our life cycle commonly exceeds three years on server hardware, this was a significant advantage."

Stirling 266

With its dual LGA 1366 sockets, the Stirling 266 is a 2U SuperServer 6026T-TF

that's capable of utilizing Intel's high-end Nehalem processors. There are also 12 DDR3 sockets that can support up to 192GB of Registered ECC DDR3 or up to 48GB of unbuffered memory with ECC. Helpful features include support for KVM over LAN and virtual media over LAN through the integrated IPMI 2.0 and Realtek dedicated LAN. The U.S. Army will enjoy peace of mind with built-in PC health monitoring. Aberdeen also preloaded ESXi on the hosts of the server, which made the environment turnkey for the Army. "We more or less just had to install the equipment in the racks and turn it on," Dupere says. "They also were able to provide all the extras we needed (additional drives, controllers, etc.) to make onsite repairs much quicker."

Stirling X888

The Stirling X888 storage server can provide up to 100TB of storage, and the U.S. Army took advantage of the X888's dual SFF-8087 miniSAS connectors to connect with the Aberdeen XDAS D-Series SAN to deliver up to 196TB of storage. "We needed a ton of storage and very fast I/O," Dupere says. "The Stirling X888 had this in spades—so much so that we're in the process of buying another to supplement our environment."

The server features quad Gigabit Ethernet LAN and dual SAS expansion ports. And Aberdeen's Teaming Technology offers transfer rates up to 430MBps with an added XDAS-iSCSI RAID enclosure.

Aberdeen XDAS D-Series

The XDAS D-Series is a 4U high-speed, high-availability SAN that features four 8GB Fibre Channel host ports on each of the controllers. The XDAS supports 6Gbps SAS drives to provide support for today's fastest hard drives. The XDAS D-Series is also designed to be always available with fault-tolerant hardware modules, including redundant controllers, PSUs, and fans.

Other helpful protection features include real-time problem detection and notifications through multiple monitoring capabilities on the XDAS. And intelligent firmware helps to protect against hardware failure to optimize performance and maintain data integrity. The XDAS D-Series uses a power supply that's more than 80% efficient, and it can spin down the drive to save energy when the disks aren't in use. □



Aberdeen Storage Solutions

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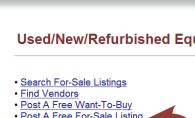
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PROCESSOR

USED & REFURBISHED EQUIPMENT

Used Tape Media

With A Reputable Vendor & Careful Handling, Used Tape Can Be Almost As Good As New

IF YOUR COMPANY STILL uses tape media for backup and archiving, you may be able to save 20 to 50% by purchasing certified used media. For example, according to DTC Computer Supplies, you might pay \$22 for new LTO-1 media, but certified used LTO-1 tape retails for about \$16. And while new cartridges retail for \$79, certified used cartridges cost only \$39. For enterprises that purchase thousands of tapes at a time, those savings can really add up.

Reputable vendors can verify that they erase 100% of the data on a tape before it is certified for reuse.

In addition, reusing digital tape is good for the planet. The other alternative—grinding up tapes and sending them to the landfill—can introduce chemical contaminants into the environment.

If you're considering purchasing used media, experts offer several tips to ease the buying process and maximize the life of used tape.

✓ Get past the fear.

Tape manufacturers work hard to convince their customers not to buy used tape, but used tape vendors say that those warnings are nothing more than fear mongering designed to increase manufacturers' sales. In fact, says Norm Hutton, director of sales for DTC Computer Supplies

However, many tapes are written to just once and then sit on a shelf for years before companies are ready to dispose of them. These cartridges have a lot of useful life left.

According to certified tape vendors, once they get past their initial fear, many first-time used tape purchasers become repeat customers.

✓ Ask the right questions.

If you decide you would like to give certified media a try, experts say you need to make sure you're dealing with a reputable vendor. How can you tell? You can start by finding out how long the company has been in business and asking about their defect rate and return rate. Hutton recommends asking how the vendor is eradicating the data, how it tests the tape, and what its warranty is like.

Vendor e-Mediaplus (www.e-media-plus.com) also suggests that you ask whether certification test results are available for the tape media and what kind of return policy the vendor has for defective media. You should also ask for and check customer references.

Reputable vendors have good warranties (10 years or more) and simple return procedures, and they can verify that they erase 100% of the data on a tape before it is certified for reuse.

✓ Follow good tape-handling procedures.

Certified used tape can be used for the same applications as new tape, and it doesn't require any special handling procedures. However, you should treat it with the same care that you would treat new media.

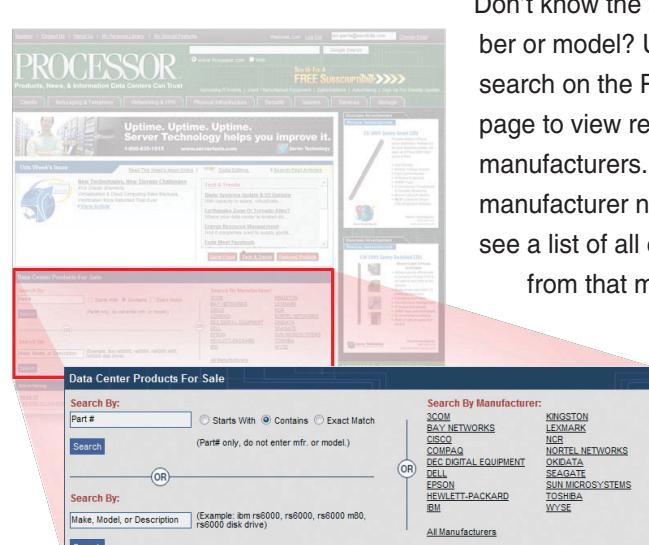
Additionally, tape manufacturers and resellers generally recommend that you store tapes vertically and never take apart the cartridges or touch the media with your bare fingers. In addition, you should avoid dropping the tapes and keep them well away from magnetic devices, including monitors, speakers, electrical motors, and power supplies. Finally, you shouldn't let your tapes get too cold or too hot, and when you move them from one place to another, you should wait 24 hours to let them adjust to the climate conditions before mounting the tapes. **P**

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SIX QUICK TIPS

Data Center Commissioning

Tips For Before, During & After The Building Process

AT THE BEGINNING STAGES of designing and building a data center, it may seem like the only goal is to get it finished, up, and running; however, what you must remember is that building the data center is only the beginning. Before you can actually turn the systems on and integrate them into your company, you need to test every component and put all of it through the data center commissioning process.

"The commissioning process is a test drive or full testing of the facility," says Darin Stahl, lead analyst at Info-Tech Research. "It's the opportunity to validate the design, systems, and integrity of the room." In other words, it's perhaps the most important part of building a data center and ensures that it will be reliable for years to come. To help you through the process, here are a few tips that should make your data center commissioning run more smoothly.

✓ Hire An Outside Firm To Commission Your Data Center

Although it may seem possible to commission a data center yourself, Don Melchert, critical facility specialist at Universal Networking Services (www.apcdistributors.com), recommends only doing so if you have a "trained and well-informed staff that knows each product that is purchased, how and why it was installed, and makes sure it reaches the metrics set by the company." However, both Melchert and Stahl think it's better for the company to bring in an outside firm that is experienced in commissioning data centers.

Stahl also points out that some of the beginning roles in the building process, such as contractors, architects, and fire protection experts, may be able to provide commissioning services on the fly. This can be helpful because each of these roles knows their particular part of the data center better than anyone else and may be able to shed light on potential problems and fix them during the build. But for companies with larger data center projects, it may be more beneficial to hire one firm to handle the entire commission.

✓ Involve The Commissioning Agent Early On In The Process

If you decide to go with an independent third party for your data center commissioning, it's important to get them involved as early on as you can. It's a good idea to have a commissioning agent present even during the planning stages, so the agent can catch problems before the building process begins. The agent will then be more familiar with documentation related to the project and make sure that everything that is written will be present in the final design. This will not only save the company time in the long run, but it can also save money by preventing project-stopping issues that eat into your pre-established budget.

"If it's really late in the game, maybe you're moving in in a month, and then

Best Time-Saving Tip:

✓ Don't Rush

Although it may seem counterintuitive, penciling in an adequate amount of time for the commissioning process will help you save time (and money) in the long term. "Don't rush the commissioning process," says Darin Stahl, lead analyst at Info-Tech Research. "You shouldn't have your project plan be so overburdened and tight that the commissioning process is less than three days, for instance. If you rush the process, you might end up going live with a data center that is less reliable and doesn't have the right design characteristics."

Smartest Tip:

✓ Make The Most Of Your Budget

Darin Stahl, lead analyst at Info-Tech Research, provides a couple extra tips for budgeting your data center project effectively and slotting in money for important steps in the commissioning process:

- Break down your budget into smaller parts and really think about what parts of the budget go to materials and what parts go to commissioning.
- Make sure you schedule time and money in your budget for the provisioning step, which is the part of the process where problems will need to be fixed and then a test must start over from the beginning.

you have them come in and test it, there may be significant problems that will be expensive to fix," Stahl says. "But, if you can get them in early once everything is set up and systems are drawn, that's great. They can catch some issues ahead of time. It's cheaper to mitigate them on paper than when they are already in the walls."

✓ Understand The Overall Commissioning Process

As with any process inside of a data center, you'll want to research data center commissioning and understand everything that goes into it. Even a basic understanding of the parties and steps involved will improve your chances of building and commissioning a reliable data center. You should start by putting a project leader in place who will be in charge of overseeing the build. That way, there is someone from your company involved in the process that will be a resource for the commissioning agents.

Next, talk with the commissioning agents to see what their plan of action will be. According to Stahl, most commissioning agents will start with "inspections as well as look at the specifications and requirements you've designated." Then, the agent will make sure that all of the mechanical components are installed correctly. This includes assessing the overall design of the data center and ensuring it will be easy to upgrade in the future.

Finally, the agent will test every component individually and note any deficiencies before initiating a system integration at full load, according to Stahl. He says that some commissioning firms will actually attempt to find the "break point" for your data center at this step, which gives you a good idea of what it can handle to avoid performance problems in the future.

✓ Take Every Opportunity To Learn

Melchert suggests that the project lead or a member of the IT team should get involved in the data center commissioning process so "both sides of the fence understand what happened along the way." If you take the time to learn about your data center from the beginning, you may be able to avoid problems or at the least know how to fix them quickly when they arise.

"It's better for the customer if mistakes, changes, and corrections are all known from the beginning to the end," Melchert says. "You can gain a lot of knowledge from a technician and they provide more in-depth training if the customer is in there asking questions." P

BONUS TIPS:

✓ Communicate with vendors and manufacturers.

"Before the systems are installed, speak with the manufacturers and understand what the risks are during the testing process," says Don Melchert, critical facility specialist at Universal Networking Services (www.apcdistributors.com). "Know what will happen before it happens and understand how it will affect each part of the facility."

✓ Try to test multiple systems at once.

If two pieces of equipment need to use the same test loads or parameters, then it can save you time and money to test both pieces at the same time. Melchert says that if you are installed a UPS or PDU at the same time as a new air conditioner, it makes sense to test them together "to maximize efficiency even during the testing process."





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